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WILD ROSES.

THE species of Roses are now much sought after by many English gardeners, but their cultivation is not a new hobby. Lindley's *Rosarum Monographia* shows what a large number were in cultivation in 1820, and I have my father's catalogue of the Roses grown at Bitton in 1832. I think the list may interest many readers of the *Gardeners' Chronicle*, so I copy it for their benefit—the arrangement is Lindley's. *Henry N. Ellacombe, Bitton Vicarage, May* 19.

I. *Simplicifolia.*

II. *Feroces.*

ferox, Kamchatica.

III. *Bracteatæ.*

bracteata, β scabriuscala.

IV. *Cinnamomeæ.*

nitida, rapa, lucida, laxa, parviflora, double var.; Woodsii, carolina, β florida; blanda, fraxinifolia, cinnamomea, β fœcunda, γ fluvialis, taurica, davurica, majalis, macrophylla.

V. *Pimpinellifoliæ.*

alpina (Sharon), β. pyrenaica, γ pendulina, δ pimpinellifolia, rubella, β melanocarpa, γ rubella (Oxon—non Hort.), δ striata, ε alba, stricta, aciculatis, sulphurea, lutescens, spinosissima, β reversa, γ platycarpa, δ pilosa, ε turbinata, ζ Pallasii, η Rossica, θ islandica, ι sanguisorbifolia, κ aculeatissima, grandiflora, Biebersteini, myriacantha, involuta, reversa, Sabini, β Doniana.

VI. *Centifoliæ.*

centifolia, β muscosa fl. sim. pl., γ pomponia, δ bipinnata, gallica, β pumila, γ arvina, parvifolia (Burgundy Rose).

VII. *Villosæ.*

turbinata, villosa, β fl. pl., Dicksoni; tomentosa vera, β mollis, γ resinosa, δ oxoniensis, alba, hibernica.

VIII. *Rubiginosæ.*

lutea, β punicea, rubiginosa vulgaris; β micrantha, γ umbellata, δ grandiflora, ε flexuosa, ζ rotundifolia, η sepium, θ inodora, Borreri, pulverulenta, cuspidata.

IX. *Caninæ.*

caucasica, canina, collina, dumetorum, rubrifolia, microphylla, indica, semperflorens, diversifolia, double, Lawrenceana.

X. *Systylæ.*

systyla var. Monsoniæ, arvensis var. scandens, sempervirens, multiflora, Brunonis, moschata, rubifolia, β fenestralis.

XI. *Banksiæ.*

sinica, setigera, Banksiæ.

Roses from Berlin, 1832.

Rosa botryophora Sangarica, Klukii, nitidula, uncinella, camtschatica, Wolfgangiana, govenkiensis, Borreykiana, ciliatopetala, Fischeriana, caryophyllacea.

Roses from Berlin, 1833.

leucantha, frutecorum (?), caucasica, mosquensis, davurica, terebinthacea, Rofinskiana, spinosissima taurica, dimorpha, sibirica, livescens (?), microcarpa.

GARDEN, FOREST, AND ORCHARD PESTS.

CONCERNING various garden pests forwarded to us for inspection by our correspondents, and which we sent to Mr. R. Newstead, Chester, this well-known authority kindly replies:—

"Judging from the number of complaints which have reached us from various parts of the country, insect pests of all kinds seem to have committed terrible havoc in our orchards, our gardens and forests, during the ungenial weather of the past spring; and the semi-defoliated branches you have sent us show how terribly destructive the various pests have been. The larvæ of the Winter-moth were in greatest abundance, and they had attacked the Apple, the Oak, Hazel, and Willow. The mottled Umber-moth (Hybernia defoliaria) occurred also on all the above named, but seems most partial to the Oak. There were also a few grubs of the pretty but terribly destructive green Tortrix-moth (T. viridana), which in the Forest of Delamere, Cheshire, and elsewhere have, by their ravages, so stunted the growth of the Oaks as to render them of comparatively little value for building or other purposes. But Apple-trees are now suffering most from a severe attack of aphis.

The cause of such an outbreak of insect life is almost invariably attributed to a cold, wet spring and prevailing east winds, conditions which are claimed as favourable to the increase and development of insects. What really happens is this: Cold materially retards the growth of the plants, but does not so materially affect the insects; the result is that the plants are not able to outgrow the attack—no fresh leaves take the place of those which have been partly eaten by the insects, and in a cold, protracted spring such as we have this year experienced, the feeding area, so to speak, becomes less and less, until the trees are stripped and as bare almost as in winter. In a warm, congenial spring, when caterpillars and other insects may be quite as numerous as in colder seasons, the plants produce a much greater abundance of foliage, and thus partly outgrow the attack, and their ravages are much less noticeable. As the result of defoliation by insects, the crop of the succeeding year is often seriously affected, and in forest trees, more especially the Oak, a second growth is produced in the late summer which rarely ripens before winter, and usually decay at the tips.

With regard to the natural enemies of the caterpillars, Ichneumon flies and birds are the only friends that we can look to for help, and there can be no doubt as to the important part which the latter play in checking the ravages of various kinds of caterpillar pests. We are glad to see that you have called attention to this. We may add that your case is not an exceptional one. In the forest of Delamere, for instance, rooks, jackdaws, jays, mistle-thrushes, blackbirds, and starlings, besides numerous titmice, and all the commoner warblers, flock there in hundreds, feeding, apparently, all day long, chiefly upon the larvæ of the green Tortrix-moth (T. viridana), besides the looper grubs of various geometer moths, which are pests throughout the land; and when the Tortrix larva has turned to its black chrysalis within its leafy domicile, the birds still find it out, and none are more assiduous in this than the 'blackest of them all'—the rooks and jackdaws."

[Mr. R. Maher, and other correspondents, who have sent a variety of injured shoots and leaves, please notice. ED.]

CULTURAL MEMORANDA.

GYPSOPHILA PANICULATA.

LOOKED at as a cut-flower and from a floral decoration point of view, this hardy perennial plant is a useful and effective one, the graceful panicles of small white flowers which are thrown up annually from the fleshy, Salsafy-like roots being everything that can be desired for associating with other flowers in bouquet-making, table decoration, and such-like purposes, where lightness and elegance of arrangement are aimed at. The shoots, which spring up from the crowns of the thick root-stocks, attain to a height of 2 feet, more or less according to the depth and fertility of the soil, these being furnished with smooth, narrow, greyish leaves, and completely covered by a dense mass of small, whitish flowers, supported by long, slender stems or foot-stalks. Individual shoots may be cut during the summer and early autumn months with floral heads, consisting of numerous thread-like stalks in much-branched stems, large enough to fill a bushel measure, these being capable of being reduced to sizes suitable for the embellishment of the smallest vases and glasses employed in floral decoration.

The plant, which belongs to the Stitchwort family, will thrive in any soil ranging between clay and peat in texture; it is a good market plant, the flowers commanding a ready sale for the purposes indicated above. It may be increased by division or seed in early spring. I plant the roots perpendicularly in trenches

about 1 foot deep, 2 feet apart, and at 9 to 12 inches from plant to plant in the row, burying the crowns about 1 inch under the surface in planting.

plant; it is also a charming plant to associate with striped Japanese Maize, Salvia patens, dark and light-coloured Fuchsias, or Acacia lophantha in mixed beds in the flower-garden,

interval of time stated, the spent flowers should be kept picked off, and not allowed to exhaust the plants in the production and ripening of seed-pods.

FIG. 1.—ROSE LADY ROBERTS. (SEE P. 6.)

COREOPSIS GRANDIFLORA.

This hardy perennial should be grown in every garden where cut flowers are in demand. The golden-yellow flowers (from 2 to 3 inches in diameter), thrown well above the feathery foliage, render it very telling as a border

set in a groundwork of blue Viola. The plant will bloom freely in any ordinary garden or field soil away from the shade of trees from June to October. The plant is easily increased by division of the roots or seed. In order to keep the plants in free flower during the

THE DOUBLE-WHITE ROCKET.

This very desirable hardy herbaceous plant is not met with in gardens so often as its merits entitle it to be. This plant, which is a variety of Hesperis matronalis, should be planted in a good moist soil, the roots being divided and

transplanted in a fresh place every second or third year. The young shoots made into cuttings when about 3 inches high, strike freely in the open ground when shaded from the sun for a fortnight or three weeks with Spruce or Laurel branches. It attains to a height of 2 feet, and produces its fragrant flowers with great freedom during the months of June and July. *H. W. Ward.*

ROSE MRS. OLIVER AMES.

THIS is the Rose of which we received specimens direct from New Jersey through Messrs. Sander & Sons. They arrived in good condition; and others were sent to H.M. Queen Victoria. Subsequently other specimens have been exhibited before the Royal Horticultural Society. The Rose is sent out by Mr. John N. May, Summit, New Jersey, and is said to have been raised as a sport from Mrs. Pierpont Morgan. The colour is a good rose-pink, deeper in the centre, with a flush of yellow at the base of the petals. The habit is good, and as to foliage and free blooming qualities it is well spoken of (fig. 2).

FLORISTS' FLOWERS.

CHRYSANTHEMUMS.

No matter for what purpose the plants are grown, no time should be lost in transferring them to their flowering-pots. It is a mistake to allow the roots to become matted together before repotting the plants, this tending to check luxuriance of growth, which is seldom too vigorous, if other conditions are in accordance. Many gardeners grow their plants too weakly, and the stems are thin, and leaves and flowers small and lacking in substance. No after treatment will make up for lost time at the start, therefore push on the plants during the earlier stages.

The last shift is very often a question of what size of pot is in stock. Usually pots of 9 inches in diameter are generally employed, and an inch wider for very vigorous Japanese varieties, where exhibition blooms are required. If a stock of 10-inch or 11-inch pots, inside measurement, is available, place two plants of one variety in each, rather than not use these sizes, or indeed it may answer to put only one plant in each pot. Two plants will succeed in one pot, choosing plants of a similar height and general appearance, uniformity of growth being a point to be considered. In the case of large trained specimens, the pots ought not to be less than 10 inches in diameter; 1 inch larger would be all the better. For ordinary decorative plants, of the single-flowered, or of Pompons, or Anemone-flowered varieties, pots from 7 inches to 10 inches diameter should be chosen, according to the larger size for the stronger plants.

The compost may consist of sound turfy-loam three parts, one part partially decayed stable dung or dried cow-manure, with enough coarse sand, wood-ashes, or charcoal, to keep the whole mass porous. To every bushel of prepared soil add 2 lbs. of Thomson's Vine Manure or vitriolised bones (superphosphate of lime). Let the drainage be good. This is important, the plant needing much moisture whilst growing fast, and any deficit in drainage is sure to be injurious, cause a check to growth, and give a pale tint to the leaves. Pot firmly, using a blunt ended potting-stick in the operation, and see that the soil presses closely around the ball, or they will mature badly and flowering will not be successful. Large blooms may be obtained from immature growth so far as their diameter is concerned, but they will be lacking in depth and solidity, and not be perfect blooms. It is well to have all these points in mind during the growing stage, it being a hopeless matter afterwards.

If the soil in the pots before the shift was thoroughly moistened, no water should be afforded for several days afterwards; a syringing of the leaves twice a day, if the weather should be hot and dry, being sufficient to preserve them from flagging.

The plants may occupy an open spot, free from shade. This is very essential, and a convenient site is on the side of a path in the kitchen-garden, standing the pots on the path, or within the edging on boards or bricks. Place a stout post at each end of a row, and to these fasten three wires, to which the stakes in the pots should be made fast. In such positions as that indicated, it is an easy matter to attend to the wants of the plants. The leaves of one plant should not touch those of the next. Train the three shoots which the plants are generally furnished with, to two stakes tied to the wires, in addition to the one made fast to the stake in the pot, and secure them to the wires. Remove all side-shoots as fast as they appear. *E. Molyneux.*

FIG. 2. ROSE MRS. OLIVER AMES.

THE ALDERBOROUGH ANEMONES.

Messrs. Reamsbottom & Co., of Grashill, King's County, Ireland, are doing much to restore something of the old popularity of the Anemone. Beginning with the Daffodil Show at Birmingham in April, this firm has exhibited at several of the leading exhibitions since. At York, on the 11th ult., they were able to fill a large table with brilliant blooms, which formed a leading feature at the Gala, and made a similar display at the Holland House Show on the 26th ult. These Anemones are by no means over, though there is generally a break in the height of summer; in September they will again be able to exhibit, and so it appears as if the Anemone can be had in bloom for a considerable period of the year. That this Irish firm has greatly improved the flower since they took in hand the St. Brigid strain of Anemones, there can be no doubt. At that time five, or at most seven, shades of colour were found in the ordinary strain, this number has now been extended to some thirty, and as it is anticipated there will be a great demand for the strain to cultivate for market work, two extra acres of ground has been sown with seeds. There has been another change, the ordinary

strain of St. Brigid Anemones give a large preponderance of single flowers; in the case of the Alderborough strain, the large percentage of the flowers are doubles.

James Maddock, of Walworth, in his *Florists' Directory*, gave the Anemone a place among our classic florists' flowers. He appears to have regarded the double form as the one most desirable to cultivate; and that seems to have been the practice with the florists who succeeded him, and particularly the Rev. Thomas Tyso, of Wallingford, who created quite an Anemone and Ranunculus industry in that Berkshire town, and who was succeeded by his son, the late Mr. Carey Tyso.

It is on record that in the 17th century, M. Bachelier, a French gentleman, brought some Anemones from America to France, which he cultivated and very much improved. An interesting story is told respecting this strain. M. Bachelier had brought his strain to such a state of perfection, and was so desirous of keeping it in his own hands, that he would not under any circumstances part with a root. For ten years he had succeeded in keeping the floral treasure to himself, until a wily friend paid him a visit, and when walking round the garden, observed that the precious Anemones were in seed; and artfully allowing his robe to fall upon the plants, as if by accident, he in doing so gathered on its surface a number of the fluffy seeds, which his servant in attendance brushed off his master's robe, and secretly appropriated them, and in this crafty manner obtained possession of his friend's Anemones.

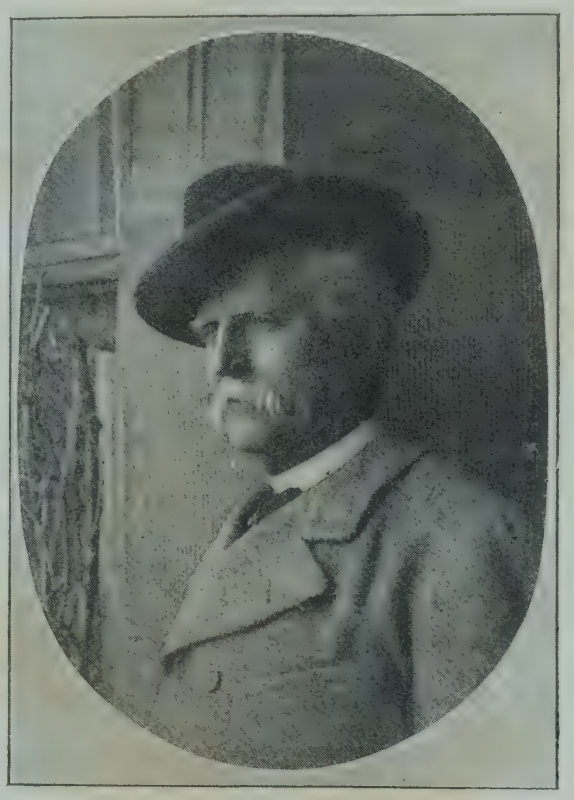
Our forefathers, who grew the Anemone for exhibition, made a serious business of it. They prepared their soil with great care; it was of good heart, and well tilled. Their model soil was a deep fertile loam, of a sandy nature. This they dug to the depth of 18 ins. some time before planting, turning it occasionally in the interim. This was held by them to be a most important point in the culture of the flower. When considered ready for planting, the surface was made level and the upper portion to the depth of 6 inches removed; then was laid in the excavation a layer of decomposed cow-manure, to the depth of 4 inches, and stirred into the soil to about the same depth. Then the removed soil was returned, and the bed allowed to settle for a few days. Then planting commenced by marking out the bed into lines 6 inches apart, and the tubers were planted to the depth of 2 ins., and safely covered. For an early bloom, planting was done in September, and the roots would in a favourable season be in bloom at the beginning of April, and continue in flower for a month. Then some more roots would be planted in January or February, as the weather permitted, and these afforded a continuance of bloom.

Messrs. Reamsbottom & Co., in their cool moist climate, proceed along rather different lines, as might be expected, where a very large supply of roots has to be provided. They are able to lift and dry off their roots by the first week in July, and these if replanted before the middle of the month commence to bloom early in October, and continue to do so during mild weather all the winter and spring. This firm follows the old plan of planting 2 inches deep, and they say that if too heavily covered there is often failure. They also advise digging the ground deeply, and manuring heavily.

Every grower of Anemones who delights in having a select collection should be a raiser of seedlings. The springtime is considered the best in which to sow, and as the seeds are of a woolly and clinging character, it is recommended that they be placed in a vessel with some sharp sand, be well rubbed together, and then sown in the open ground in a bed of fairly light and gritty soil, taking care to cover the seeds to prevent them from being blown away by the wind. *R. D.*

MR. A. B. FREEMAN-MITFORD.

AMONG the new peers created in connection with the Coronation of the King, is a distinguished public servant who has won his spurs, not only in the Civil Service, but in the domain of horticulture also. Mr. Freeman-Mitford, C.B., to give him for the moment the appellation most familiar to us, is known for his works on the literature of Japan; while horticulturists are under special obligations to him for his earnest advocacy of the introduction of hardy Bamboos to our gardens, and for the singularly luminous and accurate account of them which he has published under the title of the *Bamboo Garden*. In these days of rubbishy popular books on gardening, it is refreshing to come across one which, with all the lightness and brilliancy of touch of the best popular books, combines the thoughtfulness and accuracy of a scientific production.



A NEW PEER (A. B. FREEMAN-MITFORD, C.B.).

KEW.

IT had been intended to close the gardens on Coronation-day, but, under the altered circumstances, the gardens and the herbarium were opened as usual. The number of visitors on the Thursday, Friday, and Saturday, was very large. The gardens as usual are full of interest, the trees in summer dress; the spring-flowering shrubs, Rhododendrons, and bulbous plants are over, whilst the ordinary summer plants are late in their development, and the herbaceous plants and bedding plants do not yet make much show. The rockery is, however, rich in beautiful and interesting plants. A list of the species now in bloom there would astonish the M.P. who wished that English names should be affixed to them all! Senecio Smithii, shall we say Smith's Senecio, has large leaves, and erect panicles of white flower-heads. Another Senecio in another part of the garden may be here mentioned for the sake of its handsome appearance with its big oblong leaves, and stalked, cone-like spike of yellow flower-heads. Aster Vilmorini, on the rockery, a species from W. China, has broadly lanceolate leaves, and heads of flowers with blue rays and orange coloured disc like A. alpinus, but larger in every part. Orchis latifolia is finely illustrated, and a patch of Cypripedium spectabile is very striking. Crambe pinnatifida, with bold foliage and large loose spreading panicles of white flowers, is also very effective. Potentilla nitida, a species of close procumbent habit, with grey foliage and white flowers, is not often met with. But, as we have no intention of inflicting a mere catalogue on the reader, we content ourselves with advising him to lose no opportunity of visiting this always attractive feature of the garden. The ordinary visitor forsakes the herbaceous ground, and takes little interest in the shrub-beds and named trees in the arboretum; but the plant-lover is gratified to find in the departments mentioned a sort of classified index or detailed table of contents to the rockery and other parts of the garden, where the plants are arranged for effect or beauty in anything but botanical order. It is delightful to the connoisseur to admire a certain plant, perhaps a Rose species or a plant, of whose affinities he may be doubtful or altogether ignorant, among the ornamental collections, and then find it duly labelled in its proper place among its fellows. Both classes of visitors are so well catered for at Kew, that those responsible for its maintenance have earned a double benediction.

The Week's Work.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Early Vineries.—The exceptionally cold, wet weather of May and the early part of June caused gardeners to use fire-heat to a greater extent than usual. Black Hamburgh and other varieties now ripe should be afforded air constantly, at the same time maintaining a dry and warm air in the vinery at a temperature of 55° to 60°. If the sun's rays are very powerful, apply thin shading over Black Hamburghs, or the colour will go out of them. As soon as the Grapes are consumed, syringe the Vines with a weak solution of nicotine or soapsuds, it being of importance that the foliage be kept clean and healthy for as long a period of time as is possible. The young wood should be thoroughly matured, and to this intent as much air as possible should be afforded. Let the border be examined, and if the soil is dry at any depth, apply water and diluted manure-water copiously.

Main Crop Muscats and Gros Colmar.—Afford a moist atmosphere, and a night temperature of 70° to 75°. Change the air as early as possible in the day; allow the day temperature to rise to 90°, with sufficient top ventilation as will prevent injury by scorching, but apply no air by the front lights. Strong sun succeeding dull weather scorches the foliage of these varieties, and the roof should be sprinkled on the outside with a liquid shading. If the border should require water, use diluted liquid-manure, or sprinkle Vine-manure on the surface and apply water forthwith. Attend to the shortening of lateral shoots, and avoid all crowding of the foliage.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Budleigh, Devonshire.

Morello Cherries.—The fruits are holding on well, and promise to be a full crop. Let the trees be examined at short intervals of time, the black aphis being troublesome at about this date, and should any be found on the shoots, syringe them at about 5 P.M. with Quassia-water, or the extract, in the proportion of half a pint to 4 gallons of water, and wash it off with the garden-engine or powerful syringe the following morning.

Apricots.—Trees on light loams, carrying good crops of fruit, will be benefited by frequent applications of liquid-manure from the cow-sheds or the stables, and as heavy rains have prevailed generally, it may be afforded in an undiluted state, and washed in with clean water, and a mulch laid over the

[illegible]. Shoots that were pinched at the [illegible] early in the season will have made a [illegible] growth, which should be pinched at the first leaf. Where nails and shreds are used, examine these, removing any that are likely to damage the fruits. Syringe the trees two or three evenings in a week, and should woodlice or earwigs abound, as is the case with old garden walls, place pieces of Bamboo or Bean-stalks, cut 6 or 8 inches long, about among the branches, and empty these every morning.

Currant bushes.—As fast as the fruit begins to change colour, put nets over the bushes, first shortening the stronger shoots to about 6 inches in length. Currants on north walls should have the lateral shoots cut back to the fourth leaf, and the leading shoots made secure if there is space for extension. If aphis are noticed on the shoots, apply quassia extract as for Cherries; and when the net is put over the plants, make it secure top and bottom in order to keep out the birds, for the fruit will have to hang till late in the month of September.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Dendrobium densiflorum, D. thyrsiflorum, and D. Farmeri.—These species are in an advanced state of growth and in a fit condition for repotting or surfacing, if such be required. A suitable compost would be formed of two-thirds fibre-peat, one-third chopped sphagnum, well mixed together; the Fern rhizomes found in the peat being used as the material for draining the pots, pans, or baskets. Large specimens which may be growing less strong every year, may be carefully divided and the decayed rhizome-like stems and back pseudo-bulbs removed, retaining of the latter not more than three at the back of each lead, the plant being then re-formed of any desired size. This is an operation which may not be required for several years; but in the case of large old plants that are declining in strength, it is the only means of saving them as specimens. The plants should be firmly potted, using pots for the first two species, and pans for the last, the base of the new growths being in each case kept on a level with the rim of the pot or pan. Newly-potted plants will not require much moisture before the new roots enter the compost, and they should be placed in the stove Orchid-house till the growth of those that are deciduous is finished.

Dendrobium fimbriatum and D. moschatum.—The evergreen Dendrobiums which have long pseudo-bulbs may be similarly treated to the foregoing; the time for repotting, &c., being when the new growth has made some progress. When growing vigorously, water should be freely afforded till growth diminishes.

Dendrobium chrysotoxum and D. suavissimum.—These species are grown most successfully in suspended pans close to the roof of the house and in strong light. Repotting should be performed, when necessary, as soon as the growths have made good progress, the compost being that given above. A place in the warmest part of the Cattleya-house is suitable. During the period of growth, water should be freely applied, and the plants encouraged to make rapid growth, combined with firm texture, which may be done by allowing the early morning and late afternoon sun to reach the plants, and just as much shading in the day-time as will avert scorching of the leaves.

Dendrobium chrysanthum. — The season's growth being fully developed, remove the plants from the house in which it has been made to an intermediate-house, the doing of which will afford a slight rest before flowering begins. When the flower-buds begin to develop, the plant should be taken back to the first-named house. Whilst the plant remains in the intermediate-house, water should be applied freely, the change of temperature being alone sufficient to cause resting.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Euphorbia pulcherrima.—Except for the production of a few dwarf plants for furnishing purposes, propagation should now cease, and attention be turned to hardening off the whole of the newly-struck plants to bear the conditions prevailing in the propagating-house. This is a critical period, few plants flagging so quickly as Euphorbia pulcherrima, and, to commence with, only the slightest chink of ventilation should be applied at night to the hand-lights; this should be taken off early in the morning, and the ventilation must be gradually increased till it is possible to leave the plants fully exposed without causing them to flag. When this stage is reached they will be ready for repotting, and as the general desire is to grow the largest of plants in the smallest of pots, a rich soil consisting of the best turfy loam, good peat or leaf-mould, and silver-sand, with a small quantity of bone-meal, will be found suitable. In potting, the size of the future pot should be borne in mind, as really fine plants may be grown in 6½-inch or 7-inch pots, and it will not be advisable to use a pot larger than 3½ inches at the first potting. For the present the pit should be kept rather close, and the syringe plied freely several times daily, and shade afforded when necessary. This kind of treatment will cause the leaves to be retained almost down to the soil.

Winter Carnations will now be ready for transference to a sunny site in the frame-ground, the plants being stood thinly in cold frames, the lights being however only made use of to ward off heavy rain. For a while the plants may require slight shade during the hotter hours of the day, but the object being now to give firmness and strong texture to the growths, every opportunity should be taken of giving abundance of air, elevating the frames on bricks at the corners as the plants grow taller. In order to check the increase of red-spider, and to provide moisture without applying much water direct to the roots, a thing these slow rooting subjects cannot endure, the syringe should be freely used daily. Green-fly infesting the growing shoots must be killed with tobacco-powder.

Carnation Souvenir de la Malmaison.—As the plants cease to flower, select the healthiest and plant them in good soil in a cold frame; layer the young growths, shading them till rooted. The soil in which the plants are planted should be a very sandy loam.

Salvia splendens may now receive its last shift for the season, potting it in the same sort of mixture which is found suitable for the Chrysanthemum, and affording the plant full exposure till the autumn.

Begonia Gloire de Lorraine.—If the young plants are running freely, place them in their flowering pans or pots, of which I prefer the former, the roots appearing to like a shallow soil, and the pans are to be preferred for hanging, the best way of showing off the beauty of this plant. Do not fail to use some cow-manure in the soil, for all Begonias derive benefit from it, and Gloire de Lorraine especially so. Grow on under permanent shade in an intermediate-house with much humidity.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Lawns.—The recent heavy rainfall will have been of great benefit to all recently laid turf, and lawns that were dug and sown with grasses in the spring; and whilst the land is moist a heavy roller should be passed over it in several directions. Care should be taken that the cutting-plate of the mower be not set too low, or much harm will be done to the young grasses during very hot weather from lack of covering herbage. When mowing, let the collecting-box be removed from the mowing-machine, and thus spread the grass evenly over the surface, where it should remain as a mulch and a protection against the two scorching heat of the sun. Weeds of various species invariably appear among the newly-seeded grasses, and must be drawn out. In hot, dry weather afford water copiously twice or thrice a week—work that is better when performed on dull days or in the evening.

Hints on work in general.—Whenever the traffic on the paths caused by the bedding-out operations ceases, let the walks be swept clean, the edges of the grass clipped, and the gravel made smooth and even with an iron rake, rolling the paths, if of binding gravel, frequently with a heavy roller. Such bedding plants as Begonias and Calceolarias whose roots are usually found near the surface of the soil, require a mulch of leaf-mould, Cocoa-fibre refuse, or any other light material which is not of a rich-feeding nature, this being especially needed in light, dry soils. Petunias, Verbenas, and other trailing or creeping plants will require frequent attention in regulating and pegging the shoots down to the surface soil. The furnishing of ornamental stands and vases claims much attention on the part of the gardener; and whether foliage or flowering plants are employed in these, they should be specially grown and selected for the purpose, and should be so arranged as to impart an immediate effect. Small quantities of artificial manures and weak liquid manure-water from the stables should be occasionally afforded.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Maincrop Peas. — The unusually strong haulm which these varieties have made this season has rendered the ordinary sticking quite inadequate, especially in rows much exposed to the wind; and there is a danger of the haulm being borne down by the weight of the crop. Before the pods become heavy, let some of the stoutest sticks obtainable be placed along the rows in order to keep the haulm in place, or run some thick, soft string from stout stakes fixed on one or both sides of the rows. Weeds being everywhere very numerous this season, every endeavour should be made to prevent any of them from ripening their seed. Weeds growing in the lines of Peas should be drawn out by hand, and the spaces between the rows hoed every few weeks.

Brussels Sprouts.—Plant the last of these as soon as the land is cleared of other crops. All early crops being unusually late this season, and the plants of all winter stuff growing at a great pace in many cases, it will be necessary to make fresh arrangements in regard to planting and to prevent the spoiling of the plants. This applies equally to late Savoys, early Winter Broccoli, &c. Keep down weeds by hoeing at frequent intervals among the early planted Brussels Sprouts.

Cauliflowers. — Plant more Autumn Giant Cauliflowers to succeed those planted in the month of May. Plant also the variety Pearl, which affords whiter and better sized heads for the best table than Autumn Giant. The land on which Early Forcing and Pearl grew earlier in the year being now at liberty, let it be cleared of weeds, and if necessary dug shallow and planted with Coleworts, Savoys, and other winter greens.

Salads.—Sow seeds of moss-curled and green-curled Endive forthwith, choosing in default of other ground the ridges between the late-planted Celery trenches for the sowings. If the weather be dry, moisten the seed-drills before sowing. Plant out Lettuces for supplies in the months of August and September. Continue to make sowings weekly of Radishes on rich ground, and sow bi-weekly Mustard-and-Cress under hand-lights on a north border. These herbs are more palatable grown thus than unprotected, the growth being quicker; besides, heavy rains do not make them gritty.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* EDITOR, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

FRIDAY,	JULY 4	National Rose Society, Show, in conjunction with the Devon and Exeter Horticultural Society's Show.
SATURDAY,	JULY 5	Royal Botanical Society, Meeting.
SUNDAY,	JULY 6	Chambre Syndicale des Hort. Belges, Ghent, Meeting.
TUESDAY,	JULY 8	Royal Horticultural Society's Committee, Meetings. Wolverhampton Floral Fête, in the grounds of the International Exhibition (3 days). Rose and Horticultural Shows at Gloucester and Harrow.
WEDNESDAY,	JULY 9	Rose and Horticultural Shows at Ipswich, Beckenham, Farningham, Hereford, Stevenage, Worthing, Formby, and Ealing.
THURSDAY,	JULY 10	Rose and Horticultural Shows at Bath, Woodbridge, Hastings, and Eltham.

SALE FOR THE WEEK.

FRIDAY, JULY 11—
Imported and Established Orchids, Retarded Bulbs, &c., Orchids in Flower and Bud, by Protheroe & Morris, at 12.30.
(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —63·2°.

ACTUAL TEMPERATURES:—
LONDON.—*July* 2 (6 P.M.): Max. 72°; Min. 55°.
July 3.—Fine, warm.
PROVINCES. — *July* 2 (6 P.M.): Max. 60°, S.W. Ireland; Min. 52°, Orkneys.

The Rose Show.

THE general feeling on viewing the show of the National Rose Society at the Temple on Wednesday last was one of surprise. The weather had been so unpropitious that a poor display was expected. Instead of that, a really fine show was got together. We missed the interesting groups shown at Holland House a week before, and to that extent the Temple Show was markedly deficient. But for those who are more concerned with exhibition Roses, the Temple Show was greatly superior. The so-called garden and decorative Roses were well shown, but, as usual, much too crowded, and we could not but feel how much better they look in the garden, and how out of place they look among the Exhibition Roses proper.

Once more we were impressed with the unnecessary ugliness, if it is permissible to use such a word in connection with the Rose, that is entailed by the use of the regulation boxes. These receptacles seem contrived expressly to throttle all the grace of the Rose out of existence, and reduce it to the status of a draper's pattern-book. The Roses shown in vases, though as a rule individually less perfect, were far superior in effectiveness and beauty. The fact is, the boxes, like the card-collars round Carnations, must go, and indeed are going, so that the twentieth century will, as is fitting, be an advance on the nineteenth. Garden Roses and Tea Roses were, on this occasion as a rule, superior to the hybrid perpetuals.

For details, we must refer to another column, but we may be excused for calling attention to Lady Roberts, exhibited by Mr. F. CANT, and which obtained a Gold Medal (see fig. 1, p. 2), and to Souvenir de Pierre Notting, which we had the good fortune to see at Luxembourg some two years since, and to be the first to introduce to the notice of British readers on p. 271 of our issue for October 13, 1900.

Some instances of "disqualification" were very unfortunate, seeing that the exhibits so designated were, but for the unfortunate non-compliance with the terms of the schedule, superior to those in competition with them.

Table decorations show a great advance on what was prevalent a few years ago. Some of those exhibited on this occasion were excellent illustrations of lightness and grace, but we do not want broad silk ribbons on the table-cloth.

The show was opened by a few cheery words from Dean HOLE, and once again we have to congratulate the officials on the success of their efforts.

DIANTHUS NEGLECTUS.—For our Supplementary Illustration of this beautiful rock-plant we are indebted to Mr. J. POPE, of Birmingham, who subsequently sent us a small plant which enabled us to identify the species. It is of tufted habit, with linear acute leaves, and sends up flower-stems about 4 or 5 inches in height, each bearing a flower about 3 cent. across, the spreading petals being rose-pink, and irregularly notched at the margins. The specimen figured came from the Tyrolese Alps, but it is widely distributed throughout the Swiss and Dauphiny Alps, and also in the Pyrenees. It is a charming plant for the rockery, and provided the drainage is good it is not very difficult to please.

ROYAL HORTICULTURAL SOCIETY. — The next meeting of the Fruit and Floral Committee and show of the Royal Horticultural Society will be held on Tuesday, July 8, in the Drill Hall, Buckingham Gate, Westminster, 1 to 5 P.M. A lecture on "Ornamental Trees and Shrubs" will be given by the Right Hon. the Earl of ANNESLEY.

SIGNOR ROVELLI.—We regret to hear of the death of M. CARLO ROVELLI, the head of the remarkable nursery at Pallanza, famous for its noble Conifers, acres of Camellias, and Himalayan Rhododendrons, and other interesting plants which have been the subject of comment in these columns. M. ROVELLI died on the 15th ult.

THE HOLLAND HOUSE SHOW.—The Begonias which were recommended Awards of Merit were Masterpiece, as described on p. 442 of our last issue; Miss Dorothy Hardwick, a pink flower with frilled margins; and Prof. Lanciani, deep salmon colour. They were shown by Messrs. BLACKMORE & LANGDON, Tiverton-on-Avon. Messrs. H. CANNELL & SONS, Swanley, Kent, showed a group of Cannas in flower, that for brightness of colour equalled anything in the exhibition; many varieties were represented. Messrs. J. CARTER & Co., High Holborn, London, exhibited a capital collection of vegetables in some twenty dishes and baskets. The miniature water-garden exhibited by Mr. AMOS PERRY, of the Hardy Plant Nursery, Winchmore Hill, illustrated on p. 7, was described in the report in our last issue; the plants it included were of unusual interest. Mr. TURNER's half-standard Rose plants of single and double-flowered varieties, of the small bloom section, attracted considerable attention, and were very pretty; one of the best is shown on p. 9. The variety of Sparaxis "Fire King," exhibited by Messrs. WALLACE & Co., and shown on p. 8, was the most brilliantly coloured flower in the show.

—— Consternation was visible on the faces of the visitors on Tuesday afternoon, June 24, as the news of the KING'S serious condition gradually became known; many left the gardens at once. The attendance on Wednesday was good; Lord ILCHESTER kindly threw his gardens open to the public, and collections were made for the gardening charities.

HORTICULTURAL CLUB. — Arrangements have been made for this year's club excursion to take place on Thursday, July 24. The train leaves Paddington at 11.15 (to which saloon carriages will be attached), arriving at Cookham at 12.9. After lunch at the Crown Hotel, the afternoon will be spent on a steam launch, on which tea will be provided. The dinner will be at the Crown Hotel at 6 P.M. Those desirous of joining the party should communicate with Mr. E. T. COOK, at the Club Room, Hotel Windsor, Victoria Street, S.W.

—— At the next house dinner of the Club, Hotel Windsor, Victoria Street, on Tuesday, July 8, at 6 P.M., the guest of the evening will be Mr. H. N. ARDERNE, of The Hill, Capetown, S. Africa, who will read a paper upon "Horticulture at the Cape."

A ROSE PERGOLA has been constructed at Kew along the walk between the rockery and the wall bounding the herbaceous ground. When established it will form a delightful feature. The Rose "Dell" near to the pagoda was very attractive last week with the brilliant flowers of PAUL'S Carmine Pillar, single-flowered Rose, and the modest Rosa lutea. Crimson Rambler, growing like great Brambles, is just coming into bloom.

IRISES AT KEW.—The flowering of the extensive collection of these plants is nearly over, but the Spanish Irises are in full beauty, and among others still in flower are I. squalens, I. spuria, I. neglecta, I. ochro-aurea, a late growing species with white "standards" and yellow falls.

WILD ROSES. — The beds devoted to the species and garden forms of Rosa at Kew are richly furnished. The North American species are hardly in bloom yet, but the Japanese R. multiflora, with its many varieties, is very attractive. Rosa microphylla, another Japanese species, has neat foliage and large white flowers, flushed with pink. The cross between this species and R. rugosa is interesting, but so far as appearance goes, the cross is not so good as either parent. Another hybrid is R. rubella×, a cross between R. spinosissima and R. alpina, with neat foliage and white flowers. Rosa Webbiana should also be looked for by reason of its curious small leaves and pink flowers. Rosa de Luxembourg has remarkably brilliant deep rose-coloured flowers. There are numerous varieties of our Dog-rose, R. canina; and the Lady Penzance Briar is very attractive. Rosa Seraphim is of dwarf or prostrate habit, with neat foliage and small pink flowers. In truth, there are scores of species and varieties which have special interest now that the fashion for Rose species has set in, in some quarters. They are too numerous for mention, but Rose-lovers will be interested to know what a fine collection is displayed for their study at Kew.

Tyrolese Dianthus, grown by Mr. Pope, King's Norton, Birmingham.

THE KING'S ILLNESS.—The confusion and loss entailed among all classes of the community, and not least among horticulturists and florists, by the sudden abandonment of the Coronation, cannot be estimated. It is satisfactory, however, to find, that great as the loss is, it is as nothing to the sense of gratitude experienced at the prospects of the KING'S recovery. In the circumstances, we trust we shall hear no more for a time of the fanaticism of the anti-vivisectionists. But for the researches of PASTEUR and LISTER, our KING would probably have succumbed to his disease.

MESSRS. SUTTON AND THEIR STAFF.—The annual holiday was spent on Tuesday, June 16, at Portsmouth. A special train and a special steamboat were secured for the use of the party, and all expenses were provided by the firm. A "Coronation" gift of an extra week's salary to every employé was also announced. Needless to say, the holiday-keepers spent a "happy day."

HYBRIDS.—The subjoined letter opens up most important issues, the more so in the light of the discoveries of MENDEL, and the significance of "dominant" and "recessive" characters respectively. It is evident that the committees must act on first principles as soon as they are clearly laid down.

In the interests of those who submit hybrid plants to the Royal Horticultural Society for certificate, and of Orchid specialists in particular, it seems desirable that there should be an understanding of the basis upon which certificates are given or withheld. I refer especially to my plant of Lælio-Cattleya Martineti var. "Coronation," which I exhibited at the recent Rose show, when to my surprise, the certificate was withheld, because in the case of one of the parents (Lælia tenebrosa) there was, in the opinion of some of the members of the Orchid Committee, no trace of this species. This appears an unsatisfactory ruling, and it leads to the inquiry as to what happens or will happen when secondary, and worse still when tertiary hybrids are submitted. Can it be affirmed that in such hybrids distinct traces of each parent are always to be seen? if they are not, then all such plants must be disqualified by this ruling, which is a *reductio ad absurdum*. It would seem that my hybrid being an existing fact, in fairness to me as the raiser a certificate should have been given, with a query if necessary and later on comparisons would be possible. It would be interesting to have a minority report, for some of the Committee were quite clear in their views. This is hardly the place perhaps in which to enter upon what is either an attack upon my personal honour, or upon my methods as a trading firm; but I believe the whole question to be of sufficiently general importance to warrant my hope that you will publish this letter in the columns of your most valuable Journal. *A. A. Peeters, Saint Gilles, Brussels.*

OUR "CORONATION" NUMBER has been generally accepted, both at home and abroad, as the finest thing of its kind ever attempted by the horticultural press. Unluckily, circumstances deprived it of its special application, but its contents are of such a nature as to be of interest to gardeners at any time, and the richly illustrated account of Sandringham, and the coloured illustrations of Royal Orchids are of permanent value, quite irrespectively of their connection with the Coronation. We are asked by the publisher to say that copies can still be had at the ordinary price.

"THE LAXTON" NEW STRAWBERRY exhibited by Messrs. LAXTON BROS., of Bedford, last season, and certificated by the Royal Horticultural Society, ripened its first fruits in the open air at Bedford this year on June 24. The most popular of all Strawberries at present is Royal Sovereign, also raised by Messrs. LAXTON; but the new one, although of the same type as Royal Sovereign, ripens a much better colour, is earlier, and has firmer flesh. It was raised by crossing Royal Sovereign with Sir Joseph Paxton.

ORIENTAL POPPIES. — From Mr. AMOS PERRY, The Nurseries, Winchmore Hill, N., we have received flowers of two remarkable varieties of P. orientale. "Medusa" is very interesting, as showing the dissociation and spiral arrangement of the sepals, which, instead of being close up against the petals, are arranged in a spiral manner, with a considerable interval between each. The bract and two of the sepals are quite leafy in character; the other two sepals are also leafy, but in a less degree. This arrangement is probably only accidental and peculiar to this particular specimen, and is due to the lengthening of the stalk between each sepal. The petals are of a dull lilac or "crushed Strawberry" colour, with a deep purple blotch beneath the centre of each. "Mrs. Marsh" is a form in which the petals have a white background, heavily striped with scarlet, and with a purple blotch near the base. It is one of the finest varieties in cultivation, has an erect habit, and bears the flowers on stiff stalks, thus rendering it an acquisition for the back rows of mixed borders.

THE GARDENERS' BENEVOLENT AND THE GARDENERS' ORPHAN FUNDS.—We are pleased to hear that the sum received for these two Institutions through the kindness of the Earl

FIG. 4.—WATER-GARDEN, ARRANGED AT THE HOLLAND HOUSE SHOW, JUNE 24 AND 25, 1902, BY MR. AMOS PERRY.
(See "The Holland House Show," p. 6).

of LEICESTER in permitting access to the private grounds of Holland House on payment of 1s., on June 24, amounted to over £125.

THE GARDENERS' BENEVOLENT.—Mr. and Mrs. GEORGE MONRO are presenting to each of the pensioners of this Institution a present of a pound of tea enclosed within an appropriate canister, specially designed for the purpose, and accompanied by an elegant presentation card. The gift will be appreciated as an evidence of thoughtful sympathy, even though untoward circumstances deprive it of its character as a Coronation Souvenir.

THE ROSE CONFERENCE.

THE following is a condensed abstract of the papers read at the Holland House Rose Conference on Tuesday, June 24 (the remainder must be held over till our next issue):—

TWO VERY DISTINCT NEW ROSES FROM THE SOUTH-WEST UNITED STATES.

Mr. J. G. BAKER, F.R.S, V.M.H., made the first contribution to the general proceedings. He briefly described two new Roses from the United States of America, and exhibited coloured figures in illustration of his remarks. Both species are distinct, their nearest relation being Rosa spinosissima; in their habit they recall the Scotch Rose, and their flowers are bright red. One of them, Rosa stellata, differs however from all other known Roses in having the three terminal leaflets arranged like those of a Potentilla. It is not yet in cultivation, and comes from New Mexico, where it is found at an altitude of from 5,000 to 6,000 feet above the sea. The other species, called Rosa minutifolia, is characterised by its very small and deeply toothed leaves. Its locality is given as the "coast hills of Southern California," but the level at which it is found has not yet been recorded. Up to the present, Rosa minutifolia has not succeeded well in this country; it has been grown at Kew Gardens, but Mr. Baker is of opinion that the English climate is too damp and too warm for it. A technical account of the two Roses, which contains references to the bulletins in which they were originally described, has been prepared by Mr. Baker for insertion in the printed report of the Conference.

THE "HYBRID TEA" (ROSA INDICA ODORATA HYBRIDS).

The Rev. J. H. PEMBERTON, M.A., next read an exhaustive paper upon Hybrid Tea Roses, dividing his subject into five parts as indicated below:—

I. RETROSPECT.

Quotations made by Mr. Pemberton from the report of the last Rose Conference (1889) went to show that "Hybrid Teas" had up to that time made little real advance, but that nevertheless the separation of these hybrids from the parent group was recognised even then as having been made none too soon.

The years 1870—1880 were the era of "Hybrid Perpetuals;" the next decade was sacred to "Exhibition Teas," said Mr. Pemberton; and now the "Hybrid Teas" were challenging both of these classes for the supremacy. The introduction of Mr. Bennett's "Her Majesty," with its few and odourless blossoms, set people thinking; was it for this, that the Roses of our grandmothers, with their exquisite scent and masses of flowers, had been discarded? In the end it was resolved to have the latter back again, with anything that was as free flowering and perpetual.

II. THE RISE AND PROGRESS OF THE "HYBRID TEA"

The psychological moment for the introduction of the Hybrid Tea was seized upon. The trade catalogues of a careful grower who excludes some modern varieties which Mr. Pemberton is inclined to recognise, show a gradual increase of "Hybrid Teas" from six in 1890 to sixty-five in 1901. Similarly the official catalogue of the National Rose Society for 1884 contains but three varieties not "Hybrid Perpetuals" or "Teas," that for 1893 gives the names of twenty "Hybrid Teas," and the issue for 1897 includes forty of the latter. Hence, Mr Pemberton rightly claims that the progress of "Hybrid Teas" has been phenomenal.

III. WHAT IS A "HYBRID TEA?"

It was pointed out that there is a difficulty in reconciling the grouping together of the "Marquise de Salisbury" and "Caroline Testout," the former showing affinities with Rosa spinosissima, the latter with R. [illegible]. It is still more difficult to discover a dividing line between "Kaiserin Augusta Victoria" Hybrid Tea, and "Maman Cochet;" and what prevents "Gruss an Teplitz" from being classed as a "China?" Rabbits are excellent judges of "Teas," and Roses possessing a strain of "Tea" but while leaving untouched many so called "Hybrid Teas," to "Suzanne-Marie Rodocanachi," they are most partial.

It is stated, Mr. Pemberton went on to say, that the first "Hybrid Perpetual" was the result of a cross between a "Hybrid China" and a "Damask Perpetual." On the other hand there is considerable variation in Roses of the scented group which appears to owe its origin to the "Blush Tea" brought from China in 1810, and the "Yellow Tea" which came from the same country in 1834. Was not the "Hybrid Tea" Mr. Pemberton asked, originally a cross between the "Hybrid Perpetual" and the "Tea Scented?" What happens now in the case of a seedling, is this:—If the raiser cannot well call it a "Perpetual" or a "Tea," he dubs it a "Hybrid Tea" The National Rose Society, moreover, refuses to admit "Hybrid Perpetuals" to the decorative Rose class, and new Roses called "Hybrid Teas," obtain recognition which they would not do if given the former name. The need for deciding what is a "Hybrid Tea" is thus emphasised.

IV. CULTIVATION.

Under the heading of cultivation the varieties suitable for various purposes were dwelt upon, and each it was stated had its own idiosyncrasies. Like "Hybrid Perpetuals," so "Hybrid Teas" are impatient of the knife, and it is often better not to prune at all than to prune too much. It is not certain that the briar is the best stock. "Mrs. W. J. Grant" prefers the "Manetti," while "Clara Watson" has flowered most freely and made the strongest growth on the despised "polyantha."

FIG. 5.—SPARAXIS "FIRE KING."

Shown by Messrs. Wallace: Colour—centre yellow, surrounded by black blotch, and orange-pink margin. (See p. 6.)

V. RAISERS OF "HYBRID TEAS."

In conclusion, Mr. Pemberton spoke generally upon the subject of "raisers," and appended to his paper is a detailed list of "Hybrid Teas," showing who introduced each variety. H. Bennett, A. Dickson & Sons, Nabonnand, Pernet Ducher, and W. Paul & Sons, were amongst them credited with forty-four kinds, and to the last mentioned firm belongs the honour of having first recognised the distinctness of the Roses under consideration. The forms now most needed are a good red, dark and vivid, and a good pure white.

VOTE OF SYMPATHY WITH HER MAJESTY THE QUEEN.

At this point in the proceedings, the news that His Majesty the King had been taken seriously ill having been confirmed, a Resolution was passed by the meeting expressing its heartfelt sympathy with Her Majesty the Queen, the patron of the Royal Horticultural Society.

(To be continued.)

TRADE NOTICE.

MR. A. W. YOUNG, formerly nurseryman, Stevenage, Hertfordshire, has been appointed as manager of the hardy plant department in Mr. E. Wisemin's nursery, Elgin, N.B.

HOME CORRESPONDENCE.

JUDGING GRAPES BY DETAILED POINTS.—In reply to the letter of your correspondent, "W. W.," criticising my letter of May 17 on point-judging, he says "Lump them under the word 'finish,' which includes perfection." This red tape, haphazard, "lumping" system of judging cannot be too strongly condemned by observant, practical, and younger men. "W. W." is probably not a Grape-grower. He agrees that all collections should be judged by points, according to the rules of the Royal Horticultural Society. Let me now draw the attention of your readers in particular to the fact that this Society gives ten points for Muscat of Alexandria, and nine points for all other varieties of black and white Grapes; but why should they give these numbers of points without "detailing" them, and publishing them in their code of rules, for the benefit and guidance of all? I cannot consider these rules to be right if the points are not detailed for Grapes and all dishes of fruits, &c. We do not require memories like Milton's to remember the different points. A small card 2 inches square might be provided with the words printed on the margin, colour, finish, bloom, size of bunch, and size of berry, and the number of points awarded to every bunch or dish of fruit. By this system, any good gardener would be able to judge all the dishes of fruits at any show in the country in two-and-a-half hours. "D. B." in his letter of June 14 appears to hold the opinion that it was the finish and bloom of the berry that gave the bunch its colour. I beg to differ from him on this point; but sometimes even doctors differ. How often we see Grapes staged at shows perfectly jet black, of fine size in bunch and berry, but with not a vestige of bloom remaining. Would not "D. B." or any practical judge pass this bunch without so much as mentioning it? A bunch of the same variety of half the weight with perfect bloom, is entitled to a prize. Take for instance a bunch of green Grapes, handle them, syringe or stew them in a steamy atmosphere, and the condensed vapour and bad ventilation will spot the berries like a leopard's skin. Bloom, as we all know, is distinct from colour. It is on the berries from the first, and yet the latter may not colour properly. "D. B." also agrees with three grades of quality, and he proposes to give Muscat of Alexandria 10 points; but why not give Muscat Hamburgh the same number?
A. Kirk, Norwood Gardens, Alloa, N.B.

PROPAGATING FROM BARREN STRAWBERRY-PLANTS.—About two years ago we planted together with other varieties two short rows of Strawberry "Leader." The plants made good progress, but while all the rest produced flower-spikes the following season, there were only two plants of Leader that did so. Not wanting to make a gap in the plantation, I did not act upon my impulse at the time and cut them out, thinking the variety was not suitable for our soil. This year every plant is full of stout flower-spikes, and so are some runners that were left on the plants. A few years ago an amateur near us planted a few rows of Strawberry "Monarch," at my suggestion. He got stout plants in pots, and treated them in every way like other varieties planted at the same time. The rest did well, but not one plant of Monarch showed a flower-spike the following season, and he cut them all out. His soil is similar to that of Grimston in every respect. I have lately been wondering whether Monarch and Leader are from a somewhat similar parentage, and if so, whether if the former had been left another year they would have been fruitful. I merely mention these facts so that they should meet the eye of some gardeners who may have had a similar experience. That grand old Strawberry, Keen's Seedling, had the propensity of becoming barren in some places, as many of your older readers will well remember. In that case

runners taken from barren parts did not answer, as I know from both experience and observation. *H. J. C., Grimston, Tadcaster.* Strawberry plants which become barren in this manner are merely betraying a tendency to revert to the dioecious character of the wild plant, i.e., to the production of male and female flowers on different plants. ED.]

ROSES IN THE NORTH.—In spite of the unseasonable weather which prevailed for some weeks, we have for the last three weeks been cutting basketfuls of Tea Roses from plants out-of-doors. To-day, when gathering a lot, I thought I would send you one or two for a Coronation button-hole, and to let you see them. *J. Jeffrey, Kirkcudbright.* [Very nice blooms of Maréchal Niel, Rubens, Anna Ollivier, and Enchantress, but unfortunately they had fallen all to pieces. ED.]

LILIUM CANDIDUM. — In the coronation number of the *Gardeners' Chronicle*, I noticed a letter from Mr. Divers, The Gardens, Belvoir Castle, respecting Lilium candidum. I should be pleased if you would insert a few words from an amateur on this interesting subject. This neighbourhood is, I think, peculiarly suited to this lovely flower, to judge by the quantity to be seen in the cottage gardens and elsewhere. In my own garden I grow masses of it. Some five years ago my gardener transplanted a good number, which are now a beautiful sight, being in clumps alternate with blue Delphiniums. He, I thought, planted them too near the stone edging of the kitchen garden walk, but I soon found he had been right, and after the first year they have increased immensely and are a picture. I attribute this partly to the stone, and partly to their being in full sunshine, this being a Lily (unlike others) which I feel sure hates shade and enjoys a good baking in the summer. As to the disease, I have never as yet had it in my garden, but I think the following may be of use to some whose Lilies are suffering from it. About three years ago I paid a visit to a poor neighbour of mine, who knowing my love for these Lilies, had been in the habit for many years of bringing me a splendid sheaf of their flowers. When I glanced at her garden to look for the plants, I saw to my dismay that the bulbs were lying scattered about on the soil, not a vestige of life about them—this just after flowering, and in broiling hot weather. She then explained that the Lilies had all more or less withered and turned yellow, so her husband thinking they were dead, dug them all up, when more than half were found to be pulpy like jelly, these they threw away, and left the sound ones to dry in the sun. They then remade the soil, and replanted the bulbs in rows, and he has twice since that time brought me the most magnificent sheaves of very large flowers. I send you this for what it is worth. I feel sure the right time to divide and replant is just after the stems die down, and then plant in full sun. *S. E. C., Wilts.*

Obituary.

SIMON DÉLAUX.—Most of our readers who have been acquainted with the progress of the Chrysanthemum during the past twenty years will learn with regret of the death of M. Simon Délaux. The deceased gentleman bore an honoured name in horticulture, more particularly perhaps on account of his early efforts to improve the Japanese Chrysanthemum, both of the early type and the ordinary large-flowering November varieties, in which he was eminently successful; and in which, until the advent of M. Ernest Calvat, he really had no rival.

Growers of a generation ago will remember the great popularity of the Délaux novelties between 1880 and 1890. They will also remember the many changes in form and colour that were due to the efforts of M. Simon Délaux, and the favour that many of his flowers occupied here in England. At the time mentioned every showboard at our leading exhibitions contained examples of this raiser's skill; and even in these later times there are many of the best of the early-flowering varieties that remain with us that owe their origin to him.

Although of late years English growers and importers have not been so highly impressed with the Délaux seedlings, no season has passed without M. Délaux sending out novelties from his nursery at Toulouse, some of them being thought more highly of on the Continent than here. M. Délaux was a member of the English National Chrysanthemum Society for many years, and was also Vice-President of the French National Chrysanthemum Society. He died at his residence, St. Martin du Touch, near Toulouse, in his sixty-second year.

FIG. 6.—ROSE AUGUSTE BARBIER: FLOWERS PINK.

Shown by Mr. Charles Turner at the Exhibition of the Royal Horticultural Society, at Holland House, June 24 and 25, 1902.

"THE NATURAL HISTORY OF PLANTS."—A new edition of KERNER'S famous work, translated and edited by Professor F. W. OLIVER, is in course of publication by Messrs. BLACKIE & CO. As a work of general reference on the mechanism and operation of plants, this book has no superior. Orchid-growers might peruse what is said about the aërial roots of epiphytal plants at p. 220, with much profit.

SOCIETIES.

THE NATIONAL ROSE.

(METROPOLITAN EXHIBITION.)

JULY 2.—The annual metropolitan exhibition of the National Rose Society was held on Wednesday last in the Inner Temple Gardens, Thames Embankment, London. The tents employed for the accommodation of exhibits measured 460 feet long, and they were 40 feet wide throughout. Though not crowded, they were sufficiently well filled with exhibits; there was a better show than the most sanguine had anticipated. The Dean of Rochester opened the exhibition at noon, and remarked upon the success of the efforts of the National Rose Society to increase the beauty of the flower, its better cultivation, and wider appreciation. It was forty-four years ago since he opened the first Rose show that was held in England.

On Wednesday last there were two Gold Medals of the Society awarded to new seedling Roses; these are described below, and one of them is illustrated on p. 2. Mr. Ed. Mawley, Hon. Sec., was busy and courteous as usual, and was helped in the work of the show by Mr. S. T. Wright and Mr. Thos. Humphreys, from the Royal Horticultural Society's gardens at Chiswick.

NURSERYMEN.

MIXED ROSES.

The Champion Trophy and Gold Medal accompanied the 1st Prize for—

Seventy-two blooms, distinct varieties.—In this most exacting class there were five exhibitors against five at

the "Temple" exhibition last year, and six at the Crystal Palace exhibition in 1900. The 1st prize collection, from Messrs. FRANK CANT & Co., Braiswick Nurseries, Colchester, was very much better in quality than anyone expected to see at this show. The varieties were—*Back row*, A. K. Williams, Catherine Mermet, Captain Hayward, Caroline Testout, Cleopatra, Her Majesty, François Louvat, good large bloom, with the distinctive colour of the variety well developed; Killarney, Kaiserin Augusta Victoria, Mrs. John Laing, an excellent bloom, awarded the Silver Medal for the best light coloured H.P. exhibited by nurserymen; Charles Lefebvre, Margaret Dickson, Mrs. R. G. Sharman-Crawford, Lady Clanmorris, Mrs. W. J. Grant, Rev. Alan Cheales, Susanne-Marie Rodocanachi, Ulster, Exposition de Brie, White Lady, Ulrich Brunner, Souvenir de S. A. Prince Arthur, and Mildred Grant, a magnificent bloom of this new Rose which was awarded a Silver Medal for the best H.T. exhibited by a nurseryman. *Centre row*, Antoine Rivoire, François Michelon, Bessie Brown, Etienne Levet, Countess of Caledon, Horace Vernet, Ellen Drew, General Jacqueminot, Marguerite Appert, Lady Mary Fitzwilliam, Marchioness of Downshire, Marie Baumann, Maréchal Niel, Marquise Litta, Medea, Madame Eugène Verdier, Lawrence Allen, J. D. Pawle, Mme de Watteville, Jeannie Dickson, Souvenir de President Carnot, Oscar Cordell, Souvenir d'un Ami, and Exquisite. *Front row*, Beauty of Waltham, Bridesmaid, Comte de Paris, Devoniensis, Auguste Rigotard, Madame Gabrielle Luizet, Gladys Harkness, Duchess of Portland, Robt. Scott, Dr. Andry, Mrs. Cocker, Alfred Colomb, Heinrich Schultheiss, Mme. Jules Grolez, Dupuy Jamain, Papa Lambert, Mrs. F. Cant, Jean Soupert, Mme. E. Boultet, Marquise de Castellane, Victor Hugo, Helen Keller, and The Bride. Another good collection was shown by Messrs. B. R. CANT & SONS, of the Old Rose Nurseries, Colchester, who won 2nd prize. The 3rd prize collection also came from Colchester, being exhibited by Messrs. D. PRIOR & SONS, of Mylands Nurseries.

Forty distinct varieties, three Blooms of each.—As against five competitors in this class last year, on the present occasion there were three, making together an exhibit of 120 blooms. The best collection was shown by Messrs. ALEX DICKSON & SONS, Ltd, Newtownards, co. Down, Ireland. The following varieties had the best effect, Madame Cusin, Comtesse de Nadaillac, Horace Vernet, Bessie Brown, Madame de Watteville, White Lady, Dr. Andry, Countess of Caledon, A. K. Williams, M. Grant, Mrs. W. J. Grant, Sir Robert Stout (a vivid crimson-coloured H.P. raised by this firm), Lady Clanmorris, Caroline Testout, Lady Mary Fitzwilliam, &c. Messrs. B. R. CANT & SONS, The Old Rose Nurseries, Colchester, who were 2nd, exhibited bright, fresh-looking blooms of rather smaller size. 3rd, Messrs. F. CANT & Co.

Forty-eight Blooms, distinct varieties.—The 1st prize collection in this class was shown by Mr. HUGH DICKSON, Royal Nurseries, Belfast, but another fine collection would have had this distinction had not a case of duplication necessitated it being disqualified. The best flowers in Mr. DICKSON'S collection were Gustave Piganneau, L'Innocence, Jeannie Dickson, Captain Hayward, Anna Ollivier, Mrs. John Laing, Alphonse Soupert, Mrs. W. J. Grant, Rev. Alan Cheales (very large), La Fraicheur, Earl Dufferin, Marquise Litta, La France, Marquise de Castellane, Horace Vernet, Kaiserin Augusta Victoria, Marjorie, &c. Messrs. J. BURRELL & Co., Howe House Nurseries, Cambridge, were very close competitors with the 1st prize exhibitors, and were awarded 2nd prize. 3rd, Messrs. R. HARKNESS & Co., Hitchin, Herts. There were four exhibitors in the class.

Twenty-four blooms, distinct varieties.—Always a popular class, there were as many as eight collections last year, and five this year. The best blooms were shown by Mr. JOHN MATTOCK, and they consisted of the following varieties:—*Back row*, White Maman Cochet, very fine; Mrs. Sharman Crawford, K. A. Victoria, La France de 1889, Muriel Grahame, Gustave Piganneau, Mrs. E Mawley, and Caroline Testout. *Centre row*, Bridesmaid (good), Hon. E Gifford, A. K. Williams, Cleopatra, Abel Carrière, Souvenir d'Elise, Dr. Andry, and Medea. *Front row*, Mrs. B. R. Cant, Cornelia Koch, Duke of Teck, Souvenir d'un Ami, Captain Hayward, Catherine Mermet, Dupuy Jamain, and Margaret Boudet; 2nd, Mr. GEO. MOUNT, who had large flowers that lacked the fresh appearance of those already noticed, and included too many red-coloured varieties; 3rd, Mr. CHARLES TURNER, Royal Nurseries, Slough.

Twenty-four distinct varieties, three Blooms of each—Mr. [illegible] MOUNT, of Canterbury, won 1st prize in this class, and had a very creditable collection. The varieties were Captain Hayward, Mrs. Rumsey, Catherine Mermet, Beauty of Waltham, Mrs. John Laing, Fisher Holmes, Marchioness of Downshire, Marie Baumann, Anna Ollivier, Caroline Testout, Clio, Duke of Edinburgh, Dr. Andry, Mrs. Sharman Crawford, Bessie Brown, La France, General Jacqueminot, Her Majesty, Chas. Lefebvre, Prince Arthur, Margaret Dickson, Ulrich Brunner, Mme. Gabrielle Luizet, Mme. Sophie Fropot, a pink flower, and a stranger; and another. 2nd, Mr. GEO. PRINCE; 3rd, Mr. JNO. MATTOCK, The Rose Nurseries, New Headington, Oxford.

TEAS AND NOISETTES.

The leading class for Teas and Noisettes called for twenty-four blooms of distinct varieties. There were three collections staged in competition, in comparison with four last year. Unfortunately the best Roses in this class, shown by Mr. PRINCE, of Oxford, were disqualified owing to one of the varieties being duplicated. In Mr. PRINCE'S stand the blooms were larger and better in every way, such varieties as Maman Cochet, White Maman Cochet, and Countess de Nadaillac being as good as are seen in an average season. The 1st prize was won by Messrs. FRANK CANT & Co., and the following varieties were staged:—*Back row:* Madame de Watteville, S. A. Prince, Souvenir d'un Ami, Madame Hoste, Madame Cusin, Medea, Maman Cochet, and Rubens. *Centre row*, Golden Gate, Mrs. E. Mawley, The Bride, Catherine Mermet, Maréchal Niel, Cleopatra, Caroline Kuster, and Ernest Metz. *Front row*, Etoile de Lyon, Souvenir d'Elise, Bridesmaid, the new Lady Roberts (shown in fig. 1), Madame Willermoz, Jean Ducher, Innocente Pirola, and Madame Ada Carmody. Messrs. D. PRIOR & SON had fresh-looking, rather small flowers, in their exhibit, awarded 2nd prize.

Twelve Blooms, distinct varieties.—A very pretty collection from Messrs. J. BURRELL & Co., Howe House Nurseries, Cambridge, won 1st prize in this class. The following varieties were staged: *back row*, White Maman Cochet, Ernest Metz (very fine), Comtesse de Nadaillac, and Cleopatra. *Centre row*, Maman Cochet, Souvenir d'Elise Vardon, Madame Cusin, and The Bride. *Front row*, Souvenir d'un Ami, Etoile de Lyon, Muriel Grahame, and Bridesmaid. The 2nd prize collection from Mr. JOHN MATTOCK was also very good throughout, and one of the blooms, Cleopatra, was awarded the Silver Medal for the best Tea or Noisette exhibited by a nurseryman. Other first-class blooms were Mrs. E. Mawley, Bridesmaid, Souvenir d'un Ami, The Bride, Souvenir d'Elise, White Maman Cochet, and Princess of Wales. 3rd, Mr. GEO. MOUNT.

Sixteen distinct varieties, three Blooms of each.—There were two exhibits in this class. One that gained 1st prize exhibited by Mr. GEO. PRINCE, and another awarded 2nd prize, from Messrs. PRIOR & SONS, Colchester. In the 1st prize collection, white and pink flowers were very effectively intermixed with four trebles of shades of yellow; Comtesse de Nadaillac, Mrs. Ed. Mawley, Maman Cochet, and Bridesmaid, were shown best.

ROSES IN VASES.

The exhibition Roses that were shown in vases, appeared to please all who saw them. It has been conclusively proved that the flowers lose nothing by being thus displayed. The first class was for twelve distinct varieties, to include not more than six varieties of Teas or Noisettes, seven blooms of each, in a space not exceeding 6 feet by 3 feet. Mr. GEORGE PRINCE won the 1st prize for an exhibit arranged in twelve glass vases, placed upon a ground of black velvet. The varieties were Maman Cochet, Medea, Mrs. Sharman Crawford, Margaret Dickson, Prince Arthur, Jeannie Dickson, Comtesse de Nadaillac (excellent), White Maman Cochet, The Bride, Souvenir de S. A. Prince, Marquise Litta, and Mrs. W. J. Grant. Mr. GEORGE MOUNT, of Canterbury, was 2nd, and also had well-developed blooms and fine foliage. Mr. CHAS. TURNER, Slough, was 3rd. There were six collections staged.

In another class of a similar nature, but for nine distinct varieties of Teas and Noisettes, Mr. PRINCE was again 1st, and showed almost similar varieties to those he had in the larger class. Comtesse de Nadaillac and Maman Cochet were the best two. Mr. JOHN MATTOCK was 2nd, and had blooms of good size; 3rd, Mr. GEORGE MOUNT.

GARDEN OR DECORATIVE ROSES.

These were in excellent condition, and the displays were greatly admired.

The 1st prize for *thirty-six distinct varieties* was won by Messrs. FRANK CANT & Co., and they showed a fine lot of large, bold bunches of flowers, of fresh appearance, and of the choicest of these decorative Roses. Some of the more prominent were Reine Olga de Wurtemburg, Claire Jacquier, Ma Capucine, Thalia, the lovely white single macrantha, Hebe's Lip, Rainbow, Papillon, Gustave Regis, Mignonette, and Camoens. Messrs. GEO. COOLING & SONS, Bath, won the 2nd prize; and Mr. JNO. MATTOCK was 3rd.

Mr. GEO. PRINCE won the premier award for eighteen varieties; and Mr. CHAS. TURNER was 2nd; Messrs. B. R. CANT & SONS being 3rd. These garden Roses were staged on tables in the centre of the tents, and each exhibit faced both ways, consequently the visitor could not see all the varieties in any exhibit without walking to the end of the tent and down upon the other side.

The next class was one for eighteen bunches of summer flowering Roses (H.P's., H.T's., T's., and Chinas were not admissible) in not fewer than three trusses of each variety. By summer flowering Roses are meant varieties that bloom about June or July, like Crimson Rambler, and do not produce further blossoms the same season. Messrs. COOLING'S varieties were Crimson Rambler, Purity, Captain Ingram, Red Moss, Liberty, Macenne, Hebe's Lip, Celestial, A. Quartière (Moss), Tuscans, Ma Surprise, Janet's Pride, a lovely pink and white Sweet Briar; Brunonis à Fleurs doubles, Rosa Mundi, Juno, Dometil Boccard, May Queen and Commandant Beaurepaire. Messrs. PAUL & SON, The Old Nurseries, Cheshunt, were 2nd. There were six collections.

OPEN CLASSES.

For twelve distinct varieties.—1st, Messrs. B. R. CANT & SONS; in this the better blooms were White Lady, Caroline Testout, Lady Fitzwilliam, Bessie Brown, and Mrs. W. J. Grant; 2nd, Messrs. D. PRIOR & SON, Colchester, the better blooms being Viscountess Folkestone, Antoin Rivoire, White Lady, La France, and Marquise Litta; 3rd, Messrs. FRANK CANT & CO., for a boxful of choice varieties of smaller size than those seen in the other boxes.

For twelve blooms of any white or yellow Rose.—1st, Messrs. D. PRIOR & SON, with Maréchal Niel of medium size and beautiful tint; 2nd, Mr. G. PRINCE, Longworth, Oxon, with Bessie Brown, including some very fine flowers; 3rd, Messrs. B. R. CANT & SONS, with Margaret Dickson.

The best twelve blooms of any light or dark crimson coloured Rose were those of Messrs. B. R. CANT & SONS, who were 1st with a grand boxful of Ulrich Brunner; 2nd, Messrs. F. CANT & Co., with neat, well finished blooms of A. K. Williams; equal 2nd, Mr. H. DICKSON, Belfast, with Rev. Alan Cheales.

The Best Twelve Blooms of any Pink or Rose-coloured Rose.—1st, Messrs. D. PRIOR & SON, Colchester, with Mrs. Jno. Laing, a capital boxful of blooms of this lovely variety; 2nd, Messrs. B. R. CANT & SONS, with Mrs. W. J. Grant, a fine lot of this lively coloured variety; 3rd, Messrs. G. & D. BURCH, of Peterborough, with La France. This was a strong class, there being ten exhibitors, and several varieties were well shown, notably Mrs. Sharman Crawford.

For the best nine blooms of any new Rose.—Messrs. F. CANT & Co., Braiswick, Colchester, secured the 1st prize for the delicate pink tinted variety Mildred Grant, the blooms being of regular size, and very fresh looking, as well as faultless.

Twelve new Roses, distinct.—The 1st prize in this class was taken by Messrs. F. CANT & Co., with a stand which included fine bloom of Bessie Brown, soft flesh; Lady Clanmore, of much the same tint, but possessing a centre of a deeper colour; Frau Karl Deuschi, pure white loosely-formed bloom; Duchess of Portland, creamy white, a neat flower; Mrs. Cocker, of a soft pink tint, full and globular; Papa Lambert, and Tennyson. The 2nd prize was taken by ALEX. DICKSON & SON, Newtownards, co. Down, with a not very even lot of blooms, the best of which were Mildred Grant, Ulster, Tennyson, and Madame Viger; 3rd, Messrs. PAUL & SON, The Old Nurseries, Cheshunt, whose box of blooms contained fair examples of Bessie Brown, Mildred Grant, Admiral Dewey, Frau Karl Deuschi, and rugosa Mercedes.

Dinner-table decorations with Roses.—The 1st prize was awarded to Miss MAUD E. WEST, Frith Dene, Wray Park, Reigate, for a pleasing arrangement of white and yellow Teas in dwarf glasses, with Fern fronds, Asparagus foliage, and grass awns; 2nd, Mrs. OSMAN G. ORPEN, for an arrangement of the large single white-flowered Rosa macrantha in six small glasses at the corners, and a bowlful in the middle of the table, with two vases 1 foot high filled loosely with pink De Meaux and R. macrantha; 3rd, Mr. JNO. MATTOCK, with an arrangement of light pink and orange-coloured Roses, set up in March glasses.

Three Sprays of Roses for personal adornment.—The 1st prize was taken by Mrs. ADELAIDE F. HARWOOD, 16, St. Peter's Street, Colchester, the exhibit including pink, yellow, and orange-scarlet coloured varieties; 2nd, Mr. JNO. MATTOCK, Rose Nurseries, New Headington, whose exhibit consisted of A. K. Richardson and Paquerette; Miss B. H. LANGTON, of Raymead, Hendon, was 3rd.

For twelve distinct single flowered Roses.—1st, Mr. G. PRINCE, Longworth, for a very full, not to say crowded, table of bunches of these varieties and species. We remarked R. Andersoni, R. pomifera, R. Paul's Crimson Pillar, the scarlet-flowered Austrian Briar, R. polyantha simplex, R. polyantha alba grandiflora, Paul's single white, Lady Penzance Briar, and Omissa; 2nd, Messrs. COOLING & SONS, Bath, in whose exhibit we observed examples of R. macrantha rugosa humilis alba, R. polyantha grandiflora, Leuchtstern, and Irish Glory; the 3rd prize was won by Messrs. PAUL & SON, The Old Nurseries, Cheshunt, with a showy lot of mostly large-flowered varieties, which included Royal Scarlet, sinica Anemone, and R. rugosa atro-purpurea.

The best and most distinct nine varieties of Button-Hole Roses.—1st, Mr. JNO. MATTOCK, whose varieties included Mrs. W. J. Grant, of a cheerful pink tint, and nice shapely bud; Anna Ollivier, Marie Van Houtte, Gustave Regis, W. A. Richardson, Rubens, &c., all nice and fresh looking; 2nd, A. EVANS, Esq., Marston, Oxford, who showed Marie Van Houtte, Madame Charles, W. A. Richardson, and Anna Ollivier, fresh-looking, but of irregular sizes; 3rd, Mr. G. MOUNT, The Nurseries, Canterbury. In this exhibit the flowers were too large, although fresh looking.

GOLD MEDAL AND OTHER NEW ROSES.

There were two Gold Medals awarded to seedling Roses on this occasion. One of these was to the variety Lady Roberts, illustrated on p. 2, a Rose introduced by Messrs. Frank Cant & Co., of the Braiswick Nurseries, Colchester. It is exceedingly near to Anna Ollivier in form, but in colour is a rich apricot shade in place of pink. It is a very fine exhibition Rose, and had already been certificated by the Royal Horticultural Society. The other Gold Medal was awarded to Souvenir de Pierre Notting, a new variety in this country this season; but it was illustrated in the *Gard. Chron.* on Oct. 13, 1900, p. 271, when one of our representatives was shown the Rose in the nurseries of Messrs. Soupert & Notting at Luxembourg. It is a delightful Tea Rose, obtained from a cross between Maman Cochet and Maréchal Niel, and is old gold colour with a little reddish-pink in the centre.

There were other new Roses exhibited, including a very fine H. T. named Queen Alexandra, raised and shown by Messrs. A. DICKSON & SONS, Belfast. It is a large, full flower, of wide petals, white, or pale blush.

A fine hybrid Bourbon Rose, named Maharajah, was shown by Messrs. B. R. CANT & SONS; the flowers are single, of large size, and maroon crimson in colour.

Messrs. R. & J. FARQUHAR & Co., of 6, South Market Street, Boston, U.S.A., sent over a large plant in a pot, of the Farquhar Rose, a polyantha variety, from a cross between Rosa Wichuraiana and Crimson Rambler. The flowers open pink, but very soon pass to white.

PREMIER BLOOMS.

The Silver Medal Roses in the Amateur Classes were all found in one stand of Mr. O. G. ORPEN'S, of Colchester, a very remarkable circumstance. The blooms were, Mrs. John Laing, Bessie Brown, and Maman Cochet.

In the Nurserymen's Classes the premier blooms were Mrs. John Laing and Mildred Grant, shown by Messrs. FRANK CANT & Co., and Cleopatra, shown by Mr. J. MATTOCK.

AMATEURS.

MIXED ROSES.

Thirty six blooms, distinct varieties.—1st, E. B. LINDSELL, Esq, Bearton, Hitchin, with a handsome stand of blooms of exquisite shape and colour. They consisted of White Lady, Ulrich Brunner, S.-M. Rodocanachi, Mrs. Mawley, Captain Hayward, Lady M. Fitzwilliam, Charles Lefebvre, Madame Cusin, Maurice Bernardin, Gustave Piganneau, M. Grahame, Louis Van Houtte, Golden Gate, Horace Vernet, Bridesmaid, Marie Verdier, M. Hoste, Duke of Wellington, M. de Watteville, Dr. Sewell, Mrs. J. Laing, La France, Helen Keller, Mrs. Grant, Maman Cochet, Fisher Holmes, Catherine Mermet, Ulster, Maréchal Niel, A. K. Williams, G. Luizet, and Souvenir d'Elise Vardon; 2nd, O. G. ORPEN, Esq., Colchester, some of whose blooms were finer than the preceding, Maman Cochet, Bessie Brown, and Catherine Mermet, very fine; 3rd, Rev. J. H. PEMBERTON.

The 1st prize in this class also carried with it the Champion Challenge Trophy for Amateurs.

Twenty-four blooms, distinct varieties. Open to amateurs who have not previously won the Champion Trophy or the 1st Prize in this class.—1st, RICHARD E. WEST, Esq., Firth Dene, Wray Park, Reigate, the best of whose blooms were Clio, Dr. Andry, Mrs. Sharman Crawford, La France, and Margaret Dickson; 2nd, A. TATE, Esq, Downside, Leatherhead.

OPEN TO ALL AMATEURS IRRESPECTIVE OF THE NUMBER OF PLANTS THEY GROW.

Twenty-four Blooms, distinct.—1st, O. G. ORPEN, Esq., with very fine blooms of Mrs. J. Laing, Helen Keller, Catherine Mermet, Souvenir de S. A. Prince, Mme. de Watteville, Rubens, Mme. Hoste, S. d'Elise Vardon, and Comtesse de Nadaillac; 2nd, the Rev. J. H. PEMBERTON, Havering-Atte-Bower, Essex. There were two exhibitors.

Twelve distinct varieties, three Blooms of each.—One exhibitor, E. B. LINDSELL, Esq., who was awarded the 1st prize for a fine stand of blooms, his best being Mrs. Grant, Captain Hayward, Mrs. S. Crawford, and Souvenir d'Elise Vardon.

Twelve Blooms of any Rose, except Tea or Noisette.—1st, Mrs. HAYWOOD, Woodhatch, Reigate (gr., Mr. T. J. Salter), with fine flowers of Mrs. S. Crawford; 2nd, Rev. J. H. PEMBERTON, Havering-Atte-Bower, with Bessie Brown.

RESTRICTED CLASSES.

The following classes were open only to growers of fewer than 2,000 plants of varieties in the National Rose Society's Catalogue of Exhibition Roses, including Teas and Noisettes:—

Twenty-four Blooms, distinct.—Five exhibitors staged, and showed blooms of average merit. 1st, E. M. BETHUNE, Esq., Denne Park, Horsham, his best being Marie Baumann (very good), White Maman Cochet, Bridesmaid, Mrs. E. Mawley, Caroline Testout, Grand Mogul, and Crown Prince; 2nd, F. WELLESLEY, Esq., Westfield, Woking.

Eight distinct varieties, three Blooms of each.—1st, E. MAWLEY, Esq., with very fine examples of Mrs. W. J. Grant, La France, Mrs. E. Mawley, and The Bride; 2nd, E. M. BETHUNE, Esq. There were five exhibitors.

Nine Blooms of any Rose, except Tea or Noisette.—1st, E. M. BETHUNE, Esq., with Mrs. S. Crawford; 2nd, W. C. ROMAINE, Esq, The Priory, Old Windsor, with Crown Prince.

OPEN ONLY TO GROWERS OF FEWER THAN 1,000 PLANTS.

Twelve Blooms, distinct.—Nine exhibitors staged. The 1st prize went to F. R. CURTIS, Esq., Wormingford, near Colchester, for a magnificent stand of blooms, comprising S. A. Prince, A. K. Williams, Madame Jules Grolez, Marquise Litta, Oscar Cordel, Helen Keller, T. Wood, La France, Rev. A. Cheales, Mrs. S. Crawford, Hippolyte Barreau, and Mrs. J. Laing; 2nd, T. B. GABRIEL, Esq.

Six Blooms of any Rose excepting Tea or Noisette.—There were seven exhibitors. 1st, T. B. GABRIEL, Esq., with La France; 2nd, G. W. COOK, Esq., Wood Glen, Muswell Hill, with Bessie Brown.

THE THREE CLASSES FOLLOWING WERE RESERVED FOR GROWERS OF FEWER THAN 500 PLANTS.

Nine Blooms, distinct.—There were eleven exhibitors. 1st, R. W. BOWYER, Esq., Hertford Heath, Hertford; 2nd, Mrs. L. E. TIMES, Bedford Road, Hitchin.

For six distinct, CHARLES K. DOUGLAS, Esq., The Villa, Rathmolyon, co. Meath, Ireland, was 1st, and his Bessie Brown was a very fine bloom; 2nd, R. BOSWELL, Esq, Sim Street, Hitchin.

With six of any variety, G. A. HAMMOND, Esq, Burgess Hill, Sussex, was 1st; and R. W. BOWYER, Esq., 2nd.

THE FOLLOWING CLASS WAS OPEN ONLY TO GROWERS OF FEWER THAN 200 PLANTS.

EXTRA CLASSES.

Twelve Blooms, distinct—1st, G. A. HAMMOND, Esq.; 2nd, Mr. G. MOULES, Orton Road, Hitchin. Six exhibitors.

EXTRA CLASSES FOR AMATEURS

Four distinct, three Blooms of each.—1st, Rev. F. PAGE ROBERTS, Halstead Rectory, Sevenoaks; Marquise Litta was here very fine. 2nd, E. WILKINS, Esq, Rosedale, Sidcup. Nine exhibitors.

Twelve Blooms distinct, open to all amateurs who have not twice previously won the Ramsay Cup.—1st, A. HILL-GRAY, Esq., Newbridge, Bath; Golden Gate, Madame Cochet, Princess Beatrice, The Bride, Madame Cusin, Medea, Souvenir d'Elise Vardon, Bridesmaid, White Maman Cochet, Maman Cochet, Catherine Mermet, and Muriel Grahame were the varieties staged in perfect form. 2nd, Rev. J. H. PEMBERTON. Nine exhibitors.

Six Blooms, open only to amateurs who have never won a 1st prize at the N.R.S. exhibition.—The 1st prize winner came from Ireland, C. K. DOUGLAS, Esq., co. Meath, and his blooms were very fine.

Six Blooms, in not fewer than four varieties, with similar conditions to those in the preceding class.—1st, JOSEPH WAKELEY, Esq., Moor St. House, Rainham, Kent.

Class 47 was for six blooms distinct, grown within 8 miles of Charing Cross, and the 1st prize was won by E. R. SMITH, Esq., Muswell Hill.

For six new Roses the Rev. J. H. PEMBERTON was 1st with Purity, Ulster, Bessie Brown, Tennyson, Mrs. Cocker, and Mrs. E. Mawley.

TEA AND NOISETTE SECTION.

Eighteen blooms, distinct.—Four exhibitors staged: O. G. ORPEN, Esq., was 1st, taking the Challenge Trophy with a magnificent stand of blooms, including Bridesmaid, Medea, Cleopatra, White Maman Cochet, Maman Cochet, Caroline Kuster, Madame de Watteville, Souvenir d'un Ami, Mrs. P. Morgan, Madame Hoste, Catherine Mermet, Souvenir de S. A. Prince, Souvenir d'Elise Vardon, The Bride, Comtesse de Panisse, Comtesse de Nadaillac, Minnie Graham, and Rubens; 2nd, A. H. GRAY, Esq.

DIVISION 2 WAS OPEN TO ALL AMATEURS IRRESPECTIVE OF THE NUMBER OF PLANTS THEY GROW.

Eighteen Blooms distinct.—In this class there were only two exhibitors, and the 1st prize went to A. H. GRAY, Esq., for a moderate stand.

Eight distinct, three blooms of each.—The last mentioned exhibitor was again 1st, and the specimen of Comtesse de Naidaillac in this stand was very superior: 2nd Rev. F. BURNSIDE, Great Stambridge Rectory, Essex.

Nine Blooms of any one variety.—1st, O. G. ORPEN, Esq.

DIVISION 3 WAS OPEN ONLY TO GROWERS OF FEWER THAN 500 PLANTS OF TEAS AND NOISETTES.

Twelve blooms, distinct.—1st, Rev. R. POWLEY, Upton Scudamore, Warminster, the blooms of Mrs. E. Mawley on this stand were very fine; 2nd, Rev. F. PAGE ROBERTS. Seven exhibitors competed.

For six blooms of one variety, the Rev. R. POWLEY was 1st, with Maman Cochet; 2nd, T. B. GABRIEL, Esq.

OPEN TO GROWERS OF FEWER THAN 500 PLANTS OF TEAS AND NOISETTES.

Nine Blooms, distinct.—1st, A. MUNT, Esq, Hedgerley, Slough; 2nd, G. A. HAMMOND, Esq, Burgess Hill, Sussex.

For six Blooms of one variety, E. J. HOLLAND, Esq., Silverdale, Sutton, was 1st, with White Maman Cochet.

For four distinct varieties, three Blooms of each, JOSEPH WAKELEY, Esq, Rainham, Kent, was 1st; 2nd, Rev. R. POWLEY.

EXHIBITION ROSES IN VASES.

For nine distinct varieties (to include not more than four varieties of Teas or Noisettes), five Blooms of each.—1st, O. G. ORPEN, Esq., whose best varieties were Kaiserin Augusta Victoria, Mrs. W. J. Grant, Maman Cochet, and Mrs. J. Laing; 2nd, Rev. J. H. PEMBERTON, his Comtesse de Nadaillac being very fine.

Six distinct varieties of Teas and Noisettes, seven blooms of each, in a space 4 ft. by 3 ft.—1st, A. H. GRAY, Esq.; 2nd, Miss LANGTON, Raymead, Hendon, N.W.

DECORATIVE CLASSES.

A bowlful of Roses lightly arranged with Rose foliage only, not more than thirty-six blooms to be used.—1st, Miss LANGTON, Raymead, Hendon; 2nd, Mrs. LEWIS PAWLE, Rowsham, Harrow.

CLASSES FOR LADIES ONLY.

A decoration of Cut Roses for Dinner-table, arranged with any cut foliage, ferns or grasses, space allowed 8 ft. × 4 ft.—Mrs. O. G. ORPEN was 1st with an arrangement of three low central vases and two lower ones at each corner of her table, the Roses used being of a coppery-yellow colour (Fortune's Yellow and Lord Penzance Briar), with a few trails of Smilax and some Maidenhead Fern—a very pleasing and artistic arrangement; 2nd, Miss ELSIE WATNEY, Shermanbury, Reigate. Miss BEATRICE LANGTON was 3rd with an arrangement in pink with trails of Asparagus. The flowers used on the last two were of a pink Briar Rose only. There were nine exhibits, all very pretty.

Vase of Cut Roses.—1st, Mrs. H. E. MOLYNEUX, Balham, S.W., with a fine vase of the Rose Killarney; 2nd, Miss TURNER, Downhurst, Hendon.

Basket of Cut Roses.—1st, Miss LANGTON; 2nd, Mrs LEWIS PAWLE.

SECTION OF GARDEN OR DECORATIVE ROSES.

Eighteen distinct, not fewer than three trusses of each.—1st, A. TATE, Esq., Downside, Leatherhead, with grand bunches of Lord Salisbury, Safrano, Gloire Lyonnaise, Reine Olga de Würtemburg, Dawn, Crimson Rambler, Hebe's Lip, Madame Pernet Ducher, Irish Glory, Red Damask, Boule de Neige, Perle d'Or, Camoens, W. A. Richardson, Leonie Lamesch, and Anne-Marie de Montravel; 2nd, Rev. J. H. PEMBERTON.

NON-COMPETITIVE EXHIBITS.

There were several very fine displays of Roses by nurserymen.

Messrs. GEO. JACKMAN & SONS, Woking, were awarded a Silver-gilt Medal; Mr. C. TURNER, Messrs. SPOONER & SON, Arthur Bridge Nursery, Woking; Messrs. GEO. BUNYARD & Co., Maidstone, Silver Medals; and Mr. F. R. CURTIS a Bronze Medal.

Messrs. LAXTON, BROS., of Bedford, made a fine display of fruits of their excellent new Strawberry, "The Laxton" (Silver Medal).

Messrs. JAS. VEITCH & SONS, Royal Exotic Nurseries, Chelsea, exhibited flowers of their new polyantha Rose Queen Alexandra, and of a still newer variety of the same type named Electra, obtained from a cross between Rosa multiflora and Rose W. A. Richardson. The variety has grown 8 feet high, and produces pretty yellow flowers in clusters.

MARKETS.

COVENT GARDEN, July 3.

PLANTS IN POTS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.		s.d.	s.d.
Adiantums, per dozen	5 0	7 0	Lilium Harrisi, per dozen	4 0	8 0
Arbor Vitæ, per dozen	6 0	36 0	Lobelias, per box	1 0	1 6
Aspidistras, per dozen	18 0	33 0	Marguerites, per dozen	4 0	6 0
Calceolarias, per dozen	4 0	6 0	— Etoile d'Or, per dozen	12 0	18 0
Cannas, per doz.	18 0	—	Mignonette, p. doz.	4 0	6 0
Clematis, per doz.	12 0	—	Musk, per dozen	3 0	4 0
Coleus, per dozen	4 0	6 0	Nasturtium, per dozen	3 0	4 0
Crassula, per doz.	8 0	12 0	Palms, various, each	1 0	20 0
Crotons, per doz.	18 0	30 0	Pansies, per box	1 6	2 0
Dracænas, var., per dozen	12 0	30 0	Pelargoniums, scarlet	4 0	18 0
Ericas, var., per dozen	12 0	30 0	— pink	4 0	8 0
Euonymus, vars., per dozen	6 0	18 0	— white	4 0	8 0
Evergreens, vars., per dozen	4 0	18 0	Petunias, per doz.	4 0	—
Ferns in variety, per dozen	4 0	18 0	Pteris tremula, per dozen	4 0	6 0
Ficus elastica, per dozen	9 0	24 0	— Wimsetti, per dozen	3 0	4 0
Fuchsias, per doz.	4 0	8 0	— Mayii, p. doz.	4 0	8 0
Heliotrope, doz.	4 0	6 0	Pyrethrum, double yellow, per doz.	5 0	8 0
Herbaceous and perennial plants in var., per box	1 0	1 6	Rhodanthe Manglesii, per doz.	3 0	4 0
Hydrangeas, per dozen	9 0	24 0	Roses, various, per dozen	9 0	24 0
Ivy Pelargoniums, per dozen	5 0	6 0	Sweet Briars, per dozen	3 0	4 0
			Tomato plants, p. dozen	1 0	1 6

CUT FLOWERS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.		s.d.	s.d.
Arums, per doz.	2 0	4 0	Marguerites, Yellow, doz. bchs.	1 0	1 6
Asparagus Fern, per bunch	1 0	2 0	Pæonies, per doz. bunches	3 0	6 0
Carnations, bnch.	0 6	1 6	Pelargoniums, Scarlet, dozen bunches	3 0	4 0
— Malmaison, per dozen	3 0	9 0	Pinks, doz. bchs.	1 0	1 6
Corn Flower, blue, dozen bunches	0 9	1 0	— Mrs. Sinkins	2 0	3 0
Eucharis, per doz.	2 0	3 0	— Her Majesty	5 0	6 0
Gladiolus, The Bride, doz bchs.	3 0	6 0	Pyrethrums, per dozen bunches.	2 0	3 0
— Blushing Bride, doz. bchs.	3 0	5 0	Roses, Mermet, p. bunch	1 0	3 0
Gypsophyla, per bunch	0 3	0 4	— red, p. dozen bunches	4 0	6 0
Iceland Poppies, p. doz. bunches	0 9	1 6	— various, doz. bunches	3 0	9 0
Iris, doz. bun.	2 0	6 0	Sweet Peas, doz.	1 0	3 0
Lilium album, p. doz. blooms	1 6	2 0	Stocks, per dozen	3 0	4 0
Lily of the Valley, dozen bunches	4 0	8 0	Stephanotis, doz.	1 0	2 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.		s.d.	s.d.
Apples, Australian, Tasmanian, and Victorian, per case	9 0	12 0	Grapes, Belgians, per lb.	0 8	1 6
Apricots, basket	3 6	—	— Muscats, A., per lb.	3 0	4 0
Bananas, bunch	6 0	10 0	— — B., per lb.	1 0	1 3
— loose, per dozen	1 0	1 6	Lemons, per case	13 0	18 0
Cherries, sieve	3 0	9 0	Mangos, per doz.	2 0	4 0
Currants, Black, sieve	7 0	—	Melons, foreign, each	1 9	4 0
— Red, basket	3 6	4 0	Nectarines, A., per dozen	8 0	12 0
Figs, per dozen	2 0	6 0	— B., per dozen	2 0	5 0
Gooseberries, per sieve or half bushel	3 0	4 0	Oranges, per case	18 0	20 0
Grapes, new Hamburgh, per lb.	2 0	2 6	Peaches, A., per dozen	10 0	18 0
— — B., per lb.	0 9	1 3	— B., per dozen	2 0	5 0
— Alicante, lb.	1 6	2 0	Pines, each	3 6	5 0
Colmars, lb.	1 6	2 0	Raspberries, pun.	2 6	—
			Strawberries, A., per lb.	0 6	1 0
			— pecks	3 0	4 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.		s.d.	s.d.
Artichokes, Globe, per dozen	3 0	3 6	Mushrooms, house, per lb.	1 0	—
Asparagus Sprue, bundle	0 6	—	Onions, new, green, doz. bunches	2 6	4 0
— English	3 0	4 0	— foreign, case	10 0	13 0
Beans, dwf., house, per lb.	0 8	—	— picklers, per sieve	5 0	—
— — Channel Islands	0 8	—	Parsley, per doz. bunches	2 0	—
— Broad, sieve	3 0	—	— sieve	1 0	—
Beetroots, per bushel	9 0	10 0	Peas, English, per bushel	2 6	3 0
Cabbage, p. tally	5 0	8 0	— bag	6 0	7 0
Carrots, per doz. bunches	1 0	4 0	Potatos, new, per cwt.	7 0	9 0
Cauliflowers, doz.	1 6	5 0	— Jersey Kidneys, per cwt.	8 0	9 0
Celery, per bundle	1 6	2 0	Radishes, p. doz. bunches	0 9	1 0
Coleworts, bushel	1 0	—	Rhubarb, outdoor, per dozen	1 6	2 0
Cress, per dozen punnets	1 3	—	Salad, small, punnets, per doz.	1 3	—
Cucumbers, doz.	2 0	3 6	Shallots, doz.	0 3	—
Endive, new			Spinach, English, bushel	0 6	1 0
French, p. doz.	1 9	2 0	Tomatos, English, per doz. lb.	4 0	5 0
Horseradish, foreign, p. bunch	1 6	2 0	— Channel Ilds. per lb.	0 4	0 5
Leeks, 12 bunches	4 0	5 0	Turnips, new, French, per dozen	4 0	5 0
Lettuces, Cos, per score	0 4	1 0	Watercress, per doz. bunches	0 3	0 6
— Cabbage, per dozen	0 4	0 6			
Marrows, Vegetable, dozen	1 0	0 —			
Mint, new, per bunch	0 2	0 3			

REMARKS.—A quantity of Strawberries in together: Southamptons, per basket, 1*s.* to 2*s.*; Kent, per peck, 3*s.* to 4*s.* Cherries, both English and foreign, in half-bushel sieves, 2*s.* 6*d.*; various, 9*s.* Cape Oranges, Mandarin, per box, 1*s.* to 2*s.* Cape Fruits, per dozen, 2*s.* to 3*s.* Mangos, per dozen, 2*s.* to 4*s.* Egyptian Onions over; now coming in boxes Lisbon Port and Valencia, 10*s.* to 13*s* Apricots, in sieves or half bushel, 10*s.* Foreign Currants, black and red; only a few Raspberries at present. Disease in Potatos is reported from Jersey.

POTATOS.

Jersey, St. Malo, and Cherbourg, per cwt., 7*s.* to 8*s.* 6*d.*

John Bath, 32 & 34, Wellington Street, Covent Garden.

ANSWERS TO CORRESPONDENTS.

ANTS IN LAWN TENNIS GROUND: *F. H. Russell.* You should obtain the Ballikinrain Ant Destroyer from Alex. Cross & Sons, Ltd., 19, Hope Street, Glasgow.

CUCUMBER LEAVES IN LARGE NUMBERS LOST DAILY: *W. D.* The leaves are attacked by the fungus called Cercospora melonis. Spray with solution of permanganate of potash, and saturate the soil with the same. Admit plenty of air. *G. M.*

FAILURE OF CASSOBA MELONS TO CARRY THEIR FRUITS: *J. K.* Have the female blossoms been efficiently impregnated by hand? or is the bottom-heat about 80°?

FERN OR CUT-LEAVED BEECH: *Don.* The reversion to the type—Fagus sylvatica—is a common occurrence with this variety, and you can do nothing to prevent it.

FIGS: *T. C.* The leaves are attacked by the fungus, Cercospora Bolleana. See our issue for July 7, 1900, p. 5.—*W. T. H.* The fruits are affected with a fungoid disease that also attacks the foliage, causing it to exhibit patches of rusty-brown colour. Remove any such leaves and all unhealthy fruits and burn them. It will be better to delay syringing the trees with a fungicide until the crop has ripened.

FLOWERING OF YOUNG BRUSSELS SPROUT PLANTS: *J. T. S.* The characters of this new German variety would seem not to be as yet fixed, and the untoward nature of the season causing a check to growth, and perhaps crowding in the seed-bed—for the plants are much drawn, have done the rest.

FOXGLOVE MALFORMED: *R. W. F.* The formation of a campanulate flower at the end of the spike is very common in the Foxglove.

FUNERAL WREATHS: *X.* There are specimens in the Kew Museum; see also *Gardeners' Chronicle*, xix. (1883), p. 783.

GRAPES DISEASED: *F. C., Constant Reader, and others.* The berries sent are affected by the fungus causing "spot." It is incurable, and you must remove forthwith every affected berry and burn them. The spores of the fungus readily disperse and settle on other berries. Dress the fruit with sulphide of potassium (liver of sulphur), at the rate of ½ oz. to 1 gallon of water. See our issue for June 21, p. 424, col. c.

INSECT: *J. McDonald.* The nearly full-fed caterpillars of the Magpie or Currant-moth, (Abraxas grossulariata), a species often destructive to the Currant and Gooseberry, attacking also the Apricot, Plum, and Sloe, or Blackthorn. The caterpillars you mention as having been found upon the Ivy were probably those of some other species, as we believe the larvæ of A. grossulariata are not known to feed upon this plant.

NAMES OF PLANTS.—*J. C.* 1, Alyssum saxatile; 2, Leptotes bicolor.—*H. F.* Veratrum nigrum, so far as we can tell without seeing the flowers.—*T. S.* 1, Cattleya luteola; 2, Lycaste aromatica.—*B. B.* 1, Odontoglossum × Adrianæ; 2, O. Coradinei; 3, O. Lindleyanum.—*Crawley.* 1, Oncidium crispum; 2, O. altissimum; 3, O. sphacelatum.—*E. A. T.* Epidendrum virens. — *W. G.* 1, Veronica spicata; 2, Potentilla, garden variety; 3, Lysimachia vulgaris; 4, Hesperis matronalis, common Rocket.—*G. Godfrey.* Hyacinthus comosus, Feather Hyacinth.—*H. Fleet.* 1, Spiræa Aruncus; 2, Polygonum cuspidatum; 3, Geranium pratense; 4, Bocconia cordata; 5, Iris sibirica var.; 6, Astrantia major.—*J. P. W. Wickham.* 1, Cratægus sps., send in flower; 2, Azara microphylla; 3, Spiræa Lindleyana; 4, Ligustrum coriaceum; 5, Syringa Josikæa.—*F. W. B.* 1, Polemonium cœruleum, white variety; 2, Crassula coccinea (Kalosanthes); 3, Diplacus glutinosus. —*Fred. Isle.* Brassia caudata.—*A. B.* 1, Veronica spicata; 2, Centaurea montana; 3, Spiræa Filipendula; 4, Iris sibirica; 5, Geranium sanguineum; 6, Asperula odorata (Woodruff); 7, Erigeron philadelphicus.—*B. B.* 1, Erigeron philadelphicus; 2, Astrantia major; 3, Erigeron speciosus; 4, Helianthemum fruticosum, double-flowered variety; 5, Veronica prostrata; 6, V. incisa. —*G. M.* 1, Streptosolen Jamesoni; 2, Deutzia crenata, single flowered var.

OLD CYCLAMENS THAT FLOWERED LAST YEAR: *An Amateur.* The tubers should be potted late in August or early in September.

PEACHES AND NECTARINES: *Jno. McC.* The fruits sent were badly smashed in the post, but the appearances were those of scalded fruits, either from lack of timely attention to the ventilation early in the day or from day-long exposure to the sun's rays, unintercepted by the leaves. The splitting of the stones may be due to a sudden access of water to the border after the latter had been in a dry state for some considerable period of time. The fruits were well-developed specimens.

PELARGONIUM BLOOMS: *W. B. K.* The great heat had caused most of the trusses to shed their petals, but we could observe no novel tint among them, and that the individual pips were of large size, of circular form, and generally of good substance. Those which had withstood the heat best were Nos. 2 and 3.

STRAWBERRY FRUITS: *M. Haldane.* The fruits are exceedingly large, well coloured, and of excellent quality.

TOMATO PLANTS DROOPING: *J. C.* The plant is suffering from "sleeping" disease. Burn all plants attacked, and work quicklime into the soil round the roots to prevent the spread of the disease.

VINES AND MEALY BUG: *H. H.* The most that you will be enabled to do at this season is to go over the Vines, and the bunches of Grapes, and touch the bug wherever observed with a camel's hair pencil dipped in methylated spirit, and defer more thorough measures to the winter season.

COMMUNICATIONS RECEIVED.—O. T.—F. R.—Gen. Lucie Smith.—C. F. M.—A. B. R.—H. T., Slough.—Maurice & Co.—S. A.—R. D.—A. D.—O. T. E. C.—P. W.—B., Tyninghame.—C. T. D.—J. A.—J. W.—W. M.—J. O'B.—J. C. T.—J. M.—L. Girnet.—W. J. I.—H. J. C.—H. Vreugdenhill.—G. M.—A. H.—F. R.—F. W. M.—J. H. Hart, Trinidad.—C. O.—O. T.—J. G. S.—G. M.—L. Bourguignan, Paris.—E. M.

(*For Weather, see p.* viii.)

THE
Gardeners' Chronicle
No. 811.—*SATURDAY, JULY* 12, 1902.

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THE NATURAL HISTORY OF CONIFERS.

THE quality of beauty which is characteristic of the earth's vegetation, and without which the practice of horticulture would never have assumed the proportions which it has, may be said to be of two distinct kinds. There is the selfish, economical beauty (speaking from the standpoint of the plant), such as that obtaining in flowers and edible fruits, where the rich colour and attractive shape has been adopted solely for the purpose of enticing insects and birds, to fertilise the one and transport the seed of the other. Then there is the beauty of colour and form which has no direct reference to special adaptation in the economy of the plant concerned, but which is ever the natural and inevitable concomitant of the plant's development in accordance with the exigencies of its environment. Hence we cultivate Ferns and Conifers for the symmetry and gracefulness of their form, and the rich green of their abundant foliage, for these plants possess no flowers wherewith to arouse the sense of beauty in forms of life external to themselves.

The world we dwell in owes very much of its beauty to the forests of Conifers embellishing the valleys and mountain-slopes of the regions of the temperate zone. They possess a kind of beauty and sublimity of aspect peculiarly their own, almost magical and fairy-like at times, and which is adapted more especially to adornment of distant landscapes, rather than to areas of ground more closely subjected to human ken. Nevertheless, if grouped with artistic taste, they are well capable of beautifying the more circumscribed premises around a town or country house. Conifers possess the enormous advantage over most other plants of being evergreen, so that unlike other forms of vegetation, they present the appearance of being fresh and alive right through the dull, dead winter months. By the word evergreen it is, of course, not implied that all the leaves of the plant last for ever; it means simply that the tree is always clothed with foliage. The needles of the Pine, e.g., last for about three years, and then, along with the short twigs on which they are borne, drop off; but, in the meanwhile, during their three years' life, other short needle-bearing shoots have been developed, and so the growth proceeds. The only exceptions to this character of evergreenness in the Order are afforded by the Larch, the deciduous Cypress (Taxodium distichum), and the Maidenhair Tree (Ginkgo biloba, L.). As the principle underlying this quality has recently been enlarged upon in the columns of this journal, I will not further enter into it here.

The Coniferæ possess foliage of a character very different from that of all other plants, and which is evidently adapted to the xerophytic conditions prevailing in the habitats of almost all members of the group; the leaves have, in most cases, been extremely reduced as regards the extent of their transpiring surfaces, owing to the exposed, elevated tracts to which, probably owing to stress of competition with other more successful forms of plant-life, they have in past times been driven. The dry winds of these regions sweeping over the leaves would inevitably induce a far too rapid evaporation from an expanded, unprotected leaf-surface, which would quickly result in desiccation, especially where the subsoil was none too rich in moisture-retaining humus. The modifications in the foliage which were perforce adopted in order that the plants might be able to live on amid such unenviable surroundings, seem to have been the following: (1) A reduction of the entire leaf to a minimum of size and of transpiring surface; (2) The acquirement of a thick protective cuticle to the epidermis or skin-covering of the leaf and twigs; (3) the secretion of a resinous substance which, to judge by the powerful odour emitted by nearly all Conifers, must hover in volatile form around the surface of the leaves, and still further aid in preventing evaporation of moisture; (4) The assumption, as in the Cypresses, Junipers, and Phyllocladus, by the younger axes of the functions ordinarily performed by the leaves, such as chlorophyll-formation, transpiration, &c.; the cylindric contour of the shoots in the Cupressineæ better enabling the latter to resist the otherwise injurious effects of sun and wind, while the flattened cladodes of Phyllocladus are amply protected by a thick cuticle and other strengthening tissue.

It is highly probable that modern Conifers are descended from such forms as the ancient Cordaiteæ, tall trees possessing either large, Palm-like leaves, or having the latter, like modern Coniferæ, though possibly not in anything like the same degree, considerably reduced in extent of lamina. They existed in Devonian and Carboniferous ages, and many species probably grew in the swampy lowlands under much more congenial conditions than those of their modern successors.

Leaving Gingko, which is hardly a true Conifer, out of consideration, the members of the group which exhibit the best-developed leaves, which are comparatively broad and expanded, are Dammara or Agathis and Araucaria imbricata; yet this is compensated for by the presence of an extraordinarily-thickened cuticle in the epidermal tissue. Some species of Podocarpus, too, have a fairly well-developed leaf-blade. The "needles" of the Pines, Larches, and Cedars testify abundantly to the xerophytic conditions under which these plants have their home; they are, nevertheless, probably the modified forms of the more expanded foliage-leaves of the ancestors of those plants. As shown by the fundamental agreement between their sexual organs, and in other ways, Ginkgo is more nearly allied to Torreya and Cephalotaxus than it is to any other plants; this fact indicates to what an extent the foliage of the latter must have been reduced in the past, for that of Ginkgo and the two other genera cannot always have been so strangely dissimilar as they are to-day.

The resinous secretion which saturates every part of the plant in most members of the group subserves, presumably, the further function of a protection against browsing animals, caterpillars, and beetles. In the Yew this property is absent, and appears to be replaced by that strange toxic quality which, as we know, is so fatal to most animal life.

Larches and Silver Firs are, perhaps, of all other Conifers, the best fitted to withstand the stress of storms and cold, for we trace them into far northern latitudes, flourishing amidst quite inhospitable surroundings. This inherent power of resistance is due in part to the character of the foliage, and also, perhaps, to the shape of the lateral branches, which, as so many horizontal, flat, tapering plates, would offer a minimum of resistance to the impact of the wind; this latter would again also be best withstood by the pyramidal shape of the tree, as the pyramid is always the best-adapted form in any object for withstanding the effects of lateral stress.

Another most advantageous method for minimising the effects of strong winds is the columnar-pyramidal habit adopted by the Cypresses and Junipers, in which the lateral branches, instead of being horizontal, grow vertically upwards, and are more or less closely approximated to the main stem; this character is especially well exhibited in Cupressus Lawsoniana var. erecta viridis. Immunity from harm is further gained by the extreme elasticity and resiliency of the stem and branches. I have seen large trees bent almost double by the wind, without being in the least affected thereby; this is doubtless due in large part to the close-grained character of the wood, and the wiry nature and method of grouping in the wood of the individual tracheides composing it.

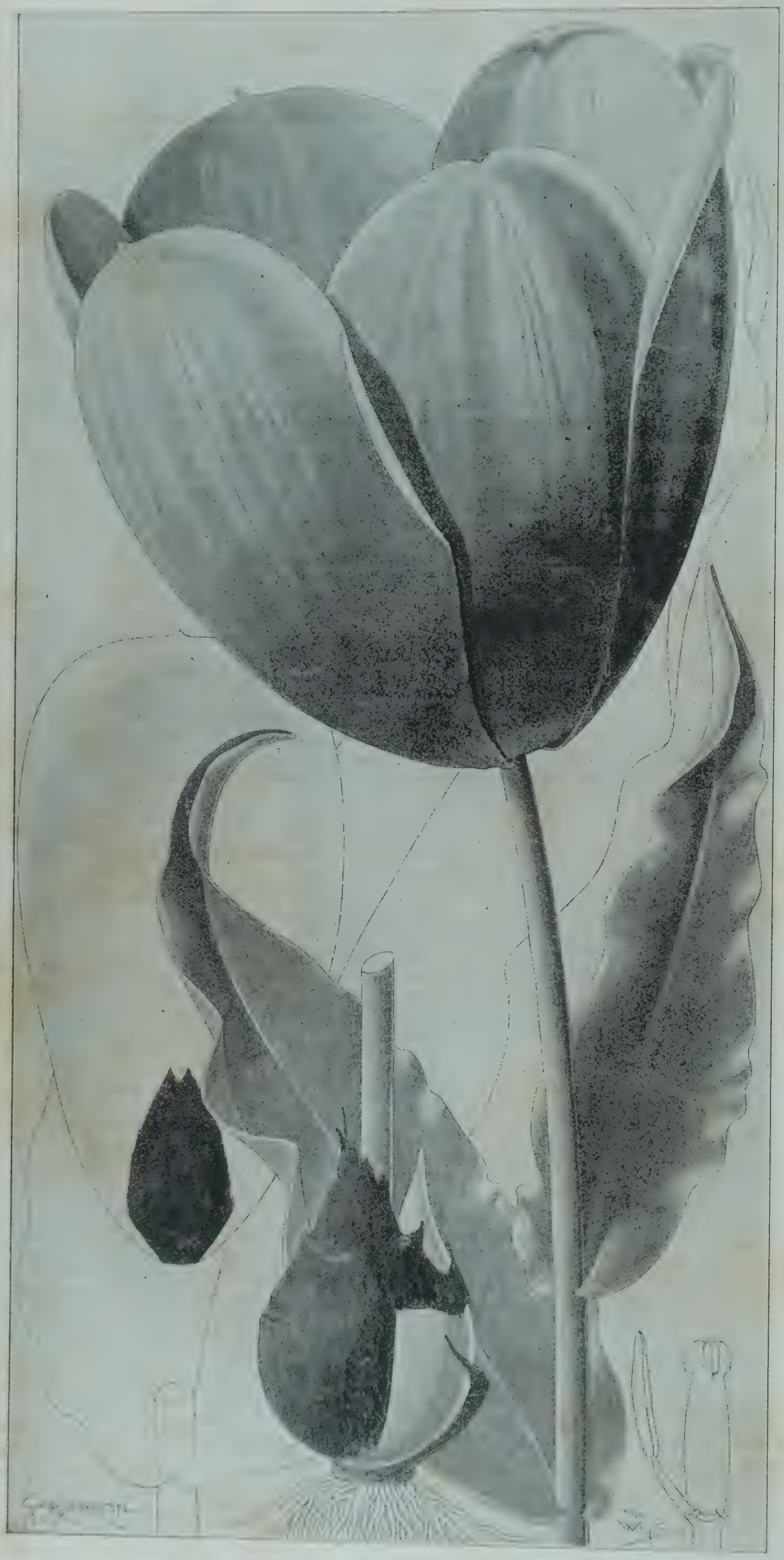

FIG. 7.—TULIPA INGENS.

The wind is the great agent for effecting fertilisation in Coniferæ, the pollen being produced in an exposed position, where it can be easily dislodged; this method of fertilisation being an exceedingly haphazard one, large quantities of pollen are therefore necessarily formed. The ovules are as a rule protected by the covering of woody scales, and are frequently, as in the Abietineæ, contained in cones; but in the Taxineæ they are perfectly exposed, and usually solitary, and seated at the end of short, often excessively short, branches or brachyblasts.

The distribution of the seeds in the group affords an interesting study in adaptation. In the Abietineæ and Cupressineæ (except Juniperus) this is effected through the agency of the wind, each seed possessing a membranous wing, as an outgrowth of its coat, which renders it easily transportable. In the Araucarias, the large seeds are perhaps distributed by animals in some way or another.

Distribution by birds plays a great *rôle*, having been adopted by members of most of the divisions of the order. This is effected by means of the development of fleshy, bright-coloured tissues in some part of the apparatus connected with the seed. In the Juniper, the seed-scales become fused together laterally along their whole length, and at the same time fleshy and blue in colour, so that the result is a more or less attractive berry containing the seeds within it. In Podocarpus, Cephalotaxus, Torreya, and Phyllocladus, as also in Ginkgo, it is the outer part of the seed-coat which becomes red in colour and fleshy. In Taxus, Dacrydium, and Microcachrys, this outer fleshy part of the seed-coat is more or less imperfectly developed as an aril partially enclosing the seed. In some cases, as in Phyllocladus and species of Podocarpus, the fleshiness extends also to the smaller shoots bearing the ovules. *W. C. W.*

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

TULIPA INGENS, *spec. nova.*

BULB ovoid, large, 3½ to 5 cm. in diameter, outer bulb-coats pale brown, very thin, completely covered on the inside with long, silky hairs, especially towards the base and the apex of the bulb; peduncle 25 cm. high, pubescent, leaves three in number, undulated, the lowest broadly lanceolate, 17 by 7 cm.; the upper linear lanceolate, 11 by 2 cm., very glaucous, and the upper surface completely covered with minute white hairs; the margin of the leaves consisting of a white, membranous, transparent, narrow border ciliated in the uppermost leaves. Perianth very large, 7 to 10 cm. long, infundibuliform-campanulate; outer segments oblong-ovate, mucronate, inner segments obovate, mucronate; colour, a bright scarlet-vermilion, each segment being marked at base with a prominent black blotch sometimes covering the whole claw, sometimes spatulate in form, never yellow-edged; the outside of the outer perianth segments bears a broad, soft yellowish-coloured band. Stamens 2 cm. in length, equalling the ovarium; filaments glabrous, subulate, black, white-tipped; anthers linear, pollen deep brown-purple; ovarium trigonous, pale red; stigmas large, yellowish, overtopping the ovarium. Native country, high mountains of Bokhara. Time of flowering first week in May.

This new species, on account of its pubescent peduncle, must be classed among Mr. Baker's scabriscapæ group of Tulipas; and its botanical position no doubt is nearest the T. altaica of Pallas and T. Eichleri, Rgl. On account of its very large flowers, I propose to name it Tulipa ingens (fig. 7). *J. Hoog, Haarlem.*

PASSIFLORA ACTINIA.*

We are indebted to Mr. Laker, of the gardens, Tickencote Hall, Stamford, for an opportunity of showing (fig. 8) this very beautiful Passion-flower. It was introduced from the Organ Mountains of Brazil to the nursery of Mr. Veitch at Exeter so long ago as 1842, but has been lost sight of. It was originally described and figured by the late Sir William Hooker in the *Botanical Magazine*, t. 4009. The plant is glabrous, with broadly ovate leaves, somewhat rounded at the base, and marginate at the apex. The petioles are nearly as long as the blade, and provided with from six to eight sessile glands. In the native specimens in the Kew herbarium the leaves are generally obscurely three-lobed, but there is one specimen from St. Catherine (Fritz Muller, n. 178) which has entire leaves, as in the cultivated plant. The stipules are leafy, obliquely oblong, aristate. The flowers are borne singly on the stalks, surrounded at the base by three large leafy oblong bracts, cordate at the base. The sepals are greenish-white internally, oblong, obtuse, without any awn-like process at the back, such as most Passion-flowers have. The petals are about the same length as the sepals, white or cream coloured. Within the petals is a row of thick threads, nearly as long as the petals, of a white colour, banded with bluish-violet. Within this outer corona are several rows of smaller threads, and an inflexed membranous ring. The base of the gynophore, or stalk supporting the stamens and ovary, is also surrounded by a membranous cup. The ovary is glabrous. Further botanical details need not be given, as they are either to be seen in Mr. Worthington Smith's drawing, or are set forth in the *Botanical Magazine* above quoted, and especially in my Monograph of the Passifloraceæ in Martius' *Flora Brasiliensis*. We need only repeat that it is a most beautiful species, and requires greenhouse treatment. *M. T. M.*

* *Passiflora Actinia*, W. Hook., in *Botanical Magazine*, 1842, t. 4009; Masters, in Martius' *Flora Brasiliensis* (Passifloraceæ), p. 615; and in classified list of cultivated Passifloreæ, *Journal of the Royal Horticultural Society* (1872), vol. iv., p. 142.

Fig. 8.—PASSIFLORA ACTINIA (W. HOOK.): PETALS CREAM-COLOURED; RAYS OF CORONA WHITISH, BARRED WITH PURPLE.

S, Sepals; P, Petals; ST, Stipules; BR, Bracts.

HAINAULT FOREST AND LAMBOURNE COMMON.

We have pleasure in publishing the following communication which we have received from the Commons and Footpaths Preservation Society—

"You were good enough recently to give publicity to an appeal made by Mr. Edward North Buxton, to the Corporation of the City of London for aid in carrying out a proposal for the extension of East London Open Spaces. It is hoped that the Corporation may be found willing to make a substantial response to the appeal, but in any event the realisation of the scheme will, to a great extent depend upon the measure of support accorded to it by those who are in sympathy with the Open Space Movement. The proposal is in the first place to acquire for the sum of £3,600 the rights of the Lords of the Manors in Lambourne Common, over 312 acres of land, and thus to bring to a conclusion all questions as to the validity of certain old enclosures, and to secure from injury or destruction the beautiful and valuable timber for which the Common is noted, and which is the undoubted property of the Lords of the Manors, Colonel Lockwood, M.P. and Captain Ethelstone. In the second place it is proposed to add to this open space by the purchase of the whole of Fox Burrows Farm, containing 475 acres, formerly waste of Hainault Forest, enclosed by the Crown under the Hainault Forest Act of 1851, and let as farm lands. Bearing in view the object for which it is required, the Commissioners of Woods and Forests are willing to sell the freehold of the land. It is estimated that the total cost will amount to at least £27,000, for which sum 859 acres will be secured with all the timber, an average of £31 an acre. As it is hoped to secure a sufficient sum to allow the arable land to be laid down in grass and sown with gorse and forest seeds, the estimate may be considerably exceeded. By way of comparison it may be pointed out that the purchase of the rights of the Lords of the Manors over Epping Forest involved an outlay of £240,000 for 5,542 acres, or over £43 an acre, although the illegality of all enclosures was successfully established. On the other hand, of the present purchase, 521 acres enjoy a parliamentary title. It is also interesting to note that in commemoration of the Diamond Jubilee of the late Queen Victoria, 165 acres of open spaces were purchased in Wandsworth, Highgate, Wood-Green, Edmonton, and Tottenham. The cost of the five schemes amounted to £121,300, or £750 per acre.

The present scheme affords them an opportunity, which it is safe to say will never recur, of assisting in the acquisition of a wide tract of beautiful forest and other land upon the most favourable purchase terms ever offered to the metropolis. The Commons and Footpaths Preservation Society has been consulted with reference to nearly all of the larger metropolitan open space schemes, and from the experience it has had as well as from its intimate knowledge of the whole of the facts in relation to the present proposal, it is able to warmly commend the scheme to the consideration of the public.

The land occupies a most commanding position on the elevated ridge lying between the River Roding and the Thames Valley. A large proportion is well wooded, and it will shortly have a station within easy reach, and thus be accessible to all inhabitants of the metropolis, and particularly to the vast and expanding population of Ilford, Romford, and

other great urban centres in the district. Not only is this the case, but the scheme proposes to add to the Metropolitan Open Spaces at the cheapest rate the largest area acquired for many years. It is believed that the greater part of the sum required will be contributed by public authorities and private donors within the county of Essex. Indeed, Mr. E. N. Buxton has already received promises of about £3,500 from his personal friends; while the Ilford Urban District Council have made a grant of £1,000, and the other large urban authorities have the question under consideration. The balance needed, however, must come from those interested in the provision of open spaces, and we venture to appeal to your readers for aid in carrying out the proposal. Contributions may be forwarded to the Secretary of the Commons and Footpaths Preservation Society, at 25, Victoria Street, Westminster; to the Lambourne Forest account at Prescott's Bank; or to Mr. Alfred Buxton, at 50, Cornhill, E.C., the Treasurer of the Fund." *G. Shaw Lefevre, Chairman; E. N. Buxton, Vice-President; Octavia Hill; Lawrence W. Chubb, Secretary.*

NOTICES OF BOOKS.

The Queensland Flora.

With praiseworthy promptness, Mr. F. Manson Bailey, the colonial botanist of the Colony, has issued the fifth part of the *Flora of Queensland*, containing the Orders from Loranthaceæ to Lemnaceæ. The descriptions are clear, and the task of the student is much facilitated by the use of analytical keys, as in the other colonial floras. The present volumes are, moreover, illustrated by a few lithographic plates, a feature in which they differ advantageously from other similar publications. Orchid lovers will be interested in the descriptive catalogue of these plants, which is comprised in this part. Thirty-three species of Dendrobium are enumerated, including D. bigibbum, under which are comprised as varieties albo-marginatum and Phalænopsis; D. speciosum is held to include Hilli, and forms such as Bancroftianum, grandiflorum, curvicaule and nitidum.

The Book of Vegetables.* A useful treatise on the cultivation of all kinds of vegetables found in gardens in this country, by a master hand.

This is the seventh of the series of handbooks on practical gardening, of which the editor is Mr. Harry Roberts. The work is divided into two portions, the larger moiety being concerned with matters of cultivation, and the remainder with methods of cooking and serving vegetables. The information given is good and reliable, and quite abreast of the times. The author has the unique advantage of being until quite recently head gardener at two places, so wide apart as Sion House and Alnwick Castle, and is enabled therefore to contrast the behaviour of varieties in two very dissimilar localities and climates—a matter of some consequence to the cultivator. We note that the sower of early Peas must use green, i.e., freshly-cut turf, in which there is "no wireworm or grub." How can the gardener, we ask, make himself sure on that point? possibly by scalding or baking it, but he is not told this. Incidentally we note that much of the subject matter has been published at various times in the pages of this Journal. The old once well-known variety of second early Pea is not called Dr. Maclaren, but Dr. Maclean, in commemoration of a raiser of some famous Peas in the fifties.

We should like to have seen Champion of England included among main crop Peas, its cropping capabilities being, equally with the flavour of the Peas, most excellent. Mr. Wythes advocates the use of well-decayed manure for Peas, in spite of the modern teaching that nitrogenous manures are relatively unnecessary.

In the chapter on Potatos, the Ashleaf variety is praised faintly, and is compared with recent introductions that are of a floury nature when cooked, forgetful of those persons who like the close, nice-flavoured tuber, and do not like so much flouriness and lack of flavour. The selection of varieties for early, mid, and late season use is sufficiently comprehensive and excellent.

We do not consider that gardeners insist on the intimate commingling of well-rotted manure with the soil, as does Mr. Wythes, and especially the first foot in depth, as being favourable to the development of shapely roots. Too often the manure is dug-in, as for Cabbage, with the result that the roots run away into two or more forks, to the loss of usable parts of the roots. The well-tried method of sowing Early London and Walcheren Cauliflowers in August and September, according to latitude, for standing the winter under hand-glasses or in cold frames, is advocated, and two or three different methods of cultivation are also indicated. Early Purple Cape Broccoli, a delicious vegetable, our author rightly keeps on his list, though not many gardeners cultivate it nowadays.

There are short chapters on French and Runner Beans, Carrots, Turnips, Beetroots, Kales, Cabbages, &c. That on the last-named vegetable should be studied by those gardeners who follow the time-honoured practice of heavily manuring, digging, and immediately setting out the plants in October, for they may thereby learn a useful lesson.

We fear the "intelligent foreigner" who reads the cookery recipes might be inclined to use unparliamentary language, so crude are some of them. Are we right in slicing our French Beans quite thin, and then extracting much of their flavour by boiling them in large quantities of cold water? Again, Kohl-Rabi should not be cooked similarly to the Turnip, and sent in a mashed state to table, there being several much more tasty ways of cooking the root. Celeriac makes a delicious salad when cooked, but it is not so much as mentioned; neither is Beetroot-soup—that is, liquor in which Beetroot has been boiled to extract colour and flavour as a basis for a meat soup; and housekeepers will protest against the directions for cooking Asparagus.

* By Geo. Wythes, V.M.H., head gardener to the Duke of Northumberland. The chapters on the History and Cookery of Vegetables by the editor. (John Lane, the Bodley Head, London and New York. Price 2*s.* 6*d.*, net.)

Pictorial Practical Vegetable Growing.*

The editor of *The Gardener* has in this manual of 150 pages produced a work eminently suited to the needs of amateur gardeners who raise vegetables for their own table. The work explains in simple, concise terms, remarkably free from the jargon of the professional gardener, which so few understand aright, the methods to be pursued in the production of the ordinary kinds of vegetables and culinary roots. The author rightly begins with praise of the kitchen garden, the contentment that it brings about, the interest which centres in it, and the seductive and satisfying enjoyment of vegetable culture generally.

The arrangement of the crops on a small plot of say 20 square rods of ground is given, together with a diagram to aid the would-be gardener; one also for a plot of ½ acre, and another for 1 acre. The be-all and end-all of some gardeners, viz., successional cropping is impeached, and instances given where the same kind of vegetables have been grown for many years without deterioration in the crops. Knowing that this can be done, the amateur, with his closely cropped plot, is relieved of much embarrassment. The things needful are good tillage, suitable manuring, and protection from insect and fungoid attacks, and Mr. Wright shows satisfactorily how these conditions may be met.

The manual is furnished with 100 trustworthy illustrations of good and bad methods of performing most operations, from digging the land to making a hot-bed; how to lift and how not to lift roots; how to transplant properly and improperly, and a host of other things, most useful for the amateur to know, which are worth many pages of text, although this is likewise given in explanation. Ordinary diseases of vegetables are satisfactorily dealt with in appropriate places, and the work is found in a moderately full index.

* By Walter P. Wright. (Cassell & Co., Ltd., London. Price 1*s.*, 1*s.* 2½*d.*, and 1*s.* 6*d.*, according to class of binding.)

TREES AND SHRUBS.

DIERVILLA HORTENSIS: Syn. Weigela.

This and its varieties are among the most handsome spring-flowering shrubs, and are at their best in the months of May and June. I do not remember having seen them fuller of flower than this year. It is a pity the plants are not planted more freely in the fronts of shrubberies, or in beds by themselves. The chief point in their culture is to get the young wood quite matured, which cannot occur when they are mixed with other shrubs. When the plant passes out of flower, thin out the shoots, removing within 2 or 3 inches of the base the shoots that have flowered this season, as it is on the current year's wood that the flowers are produced in the greatest abundance. D. hortensis (rosea) and D. amabilis, and alba or candida, are strong growers, and should be afforded plenty of space, so that the plants when in bloom can be seen to advantage. The plant likes a good soil, and to be annually manured with mild materials, such as spent hot-bed dung. The plant may be increased by suckers and cuttings, the latter being taken in September, and placed in sandy soil on a shady border, or better, under a hand-light. D. Eva Rathke is a lovely variety of a dark red tint, and planted as it is here, adjoining a few plants of Olearia stellata, the combination is very effective, both shrubs flowering at the same time. *J. Mayne, Bicton.*

[Mr. Mayne obligingly sent some beautifully-flowered branches of Eva Rathke and other varieties, that fully bear out his opinion of these showy plants, several being 4 feet long, and flowered from bottom to top. Ed.]

BULB GARDEN.

PARROT TULIPS.

I have heard it remarked that these are the only Tulips worth growing. I could not endorse that view, but it may be readily admitted that no Tulips are more showy, none more gorgeous, and that for striking grotesqueness they stand quite alone. For some years I have grown one or two commoner varieties, but last year Messrs. Barr & Son presented me with a set, and I am now able to report upon named kinds, some of them quite uncommon, and new to me: Crimson Beauty is of a brilliant scarlet colour, and has a distinct eye. Fire King (new) is much laciniated, splendid in its flaming mixture of red and

yellow, its eye not conspicuous. Markgraaf von Baden is one of the most showy; it is yellow, with red and green beneath the segments, and much laciniated. Perfecta is good; it is resplendent with red, green, and scarlet flaming together, and has a yellow eye. Another, which I should call the common kind, is simply designated Large Yellow; it is chiefly yellow, but is feathered with green, and flecked with scarlet. A second kind not rejoicing in a definite name is labelled Coffee Colour; it is yellow, with green on the back of outer segments, all being feathered inside with red. Amiral de Constantinople is bronzy. All are good, and all except the last I have marked with a cross of merit. I have besides, a distinct bronzy kind without name. To say the least, my row of these Tulips has attracted a good deal of attention, and if new varieties could be made in some of the softer and more delicate shades of colour, they would, I am sure, be most acceptable additions. *R. Irwin Lynch.*

CULTURAL MEMORANDA.

BEGONIA GLOIRE DE SCEAUX.

THE beautiful coppery foliage of this Begonia should be enough of itself to recommend its culture, but when laden with its bright pink blossoms during the winter and early spring, it is a most decorative plant. Cuttings taken from old plants may still be put in, and they will make serviceable plants in 5-inch pots, or if larger specimens are required, pots 7 inches in diameter. I find cuttings, with a slight bit of old wood attached, root quickly if dibbled loosely in leaf-soil or cocoa-nut-fibre, and kept close and not very moist. They should be placed in 3-inch pots before the roots have made much progress, and stood back in the frame for a couple of days, and then be removed to a light position in a night temperature of 65°. The plants require shade from bright sunshine, and to be repotted before becoming pot bound. A suitable kind of soil is turfy loam, with a small quantity of leaf-soil, peat, and sand mixed with it. If bushy plants are needed, pinch out the point of the shoot when a plant has been potted about a week; but if neat little decorative plants are wanted, a 5-inch pot is big enough, and then no pinching is required. The roots of old plants may be reduced in size and given a fresh start. They form useful specimens for putting in epergnes, and they stand well in apartments if no more water be afforded than is really necessary. Scale and mealy-bug infest the plant at times, but these may be got rid of by sponging with soapy water. *J. Mayne.*

DUTCH BULBS.

THE conditions which the present state of the bulbs in Holland offer are generally satisfactory, and provided excessively high or other abnormal conditions of temperature do not influence the ripening process, the harvest of Hyacinths and Tulips with a few exceptions will be a good one. In respect to Hyacinths, the bulbs were not injured by frost in winter, nor by the long continued cool weather in April and May. In the middle of June the foliage was still fresh and green; during the ripening period, the second half of that month, a regular and moderate degree of warmth is much to be desired. Of popular varieties, Homer is one that has fallen off in development.

The prospects as regards Tulips are not exactly unfavourable, and the harvest of these bulbs may be already estimated as better than that of last year. Still, it cannot be called "very good;" for example, many of the early-flowering varieties died off too quickly in the warm weather which prevailed at the end of May and beginning of June. The harvest of Duc Van Thol varieties, especially the scarlet, will scarcely be moderately good, and the bulbs will be of small size. For those Tulips still in leaf, only moderate warmth is required. In regard to moisture, the late rains have afforded enough to serve to the termination of growth.

Crocus suffered from the excessive heat at the beginning of June, and the foliage ripened off prematurely, with the consequence that the corms will be small. On the contrary, the harvest of Narcissus will be a good one. Growth has been very vigorous, and the bulbs are free from disease.

The prices show in certain sorts considerable deviation from those of last year, and Hyacinths and Narcissus are much cheaper than in 1901; and it may be anticipated that in consequence of the lower prices of Hyacinths, the quantities required by the principal importing countries will be considerably augmented. Several varieties of scarlet Tulips, in particular Duc Van Thol, have greatly risen in price; and certain new forcing varieties, as Murillo, Mon Tresor, Proserpine, have got dearer. Yellow Prince, Pottebakker, Turnesol, and several less valued varieties, continue at their former prices. *Thalacker's "Allgemeine Samen und Pflanzen-Offerte," June* 28, 1902.

ORCHID NOTES AND GLEANINGS.

"LINDENIA."

THE following species and varieties are figured in the last numbers of the *Lindenia*, published by Messrs. Linden et Cie., 117, Rue Belliard, Bruxelles:—

LYCASTE LUCIANI × VAR. SUPERBA.—L. Luciani is assumed to be a natural hybrid between L. Skinneri and L. lasioglossa, the characters it presents being intermediate. The present variety, which flowered recently at Moortebeek, is very remarkable for the very deep rosy-lilac tint of the sepals, the white petals finely spotted with purple, and the whitish lip with a central purple blotch, and yellow streaks; t. DCCLXIX.

CATTLEYA TRIANÆI VAR. MEMORIA LINDENI.—A magnificent variety, with sepals and petals of a rich rosy-lilac, more or less striped with white, and a deep purple undulate lip, the disc of which is marked with orange stripes. Cattleya Trianæi was originally discovered by Linden, and this fine variety is appropriately dedicated to his memory by his son; t. DCCLXX.

CYPRIPEDIUM AURIFERUM ×, L. Linden.—A seedling from the same seed-pod as that from which C. Beekmanni × was produced. Dorsal sepal narrowed at the base by reflexion, greenish-yellow, with purplish stripes, and bordered with white; petals deeper yellow, flushed with orange red, especially in the upper half; lip shining yellow, flushed with red; t. DCCLXXI.

DENDROBIUM WARDIANUM VAR. FASCINATOR.—A very fine variety, remarkable for the depth and brilliancy of its colouring.

Tab. DCCLXXIII is devoted to the illustration of a beautiful hybrid raised at Moortebeek, between O. crispum and O. sceptrum. The flowers are stellate, pentagonal, flat, 7 to 8 cm. across, with oblong acute yellow segments, heavily blotched with chestnut-brown; the lip is oblong, white with purplish blotches. A list of hybrid Odontoglots is given, leaving out of consideration the numerous supposed natural hybrids of O. crispum.

CYPRIPEDIUM × LATHAMIANUM VAR. IMPERIALIS, t. DCCLXXIV.—A variety raised between C. Spicerianum and C. villosum. The standard is bold, white with numerous purplish stripes, the petals bronzy-yellow flushed with red; the lip brownish-yellow. A very handsome form.

CATTLEYA GIGAS VAR. MEULENÆREANA, t. DCCLXXV.—Flowers of a soft rosy-lilac colour; lip undulate with a yellow throat, and a rosy-lilac blotch, or rather network of veins.

CYPRIPEDIUM LEEANUM VAR. ALEXANDRÆ, t. DCCLXXVI.—Standard white, bold, slightly mottled with purple; petals greenish-yellow, flushed with bronze; hairy and brown spotted at the base, lip bronzy-brown. A cross between C. Spicerianum and C. insigne var. sylhetensis. It is dedicated by M. Linden to H. M., Queen Alexandra.

LÆLIO-CATTLEYA × DUCHESNEI, t. DCCLXXVII.—A cross between C. Schilleriana and Lælia purpurata. A gorgeous variety with deep rosy-lilac segments, with pale stripes at the base, and a rich purple lip with a yellow throat, and a narrow white margin.

CYMBIDIUM ZALESKIANUM, t. DCCLXXVIII.—Apparentl a form of C. Tracyanum, or a natural hybrid between C. giganteum and C. grandiflorum, in either case a fine addition to the Orchid-house.

ONCIDIUM FORBESII VAR. ATRATA, t. DCCLXXIX.—A magnificent variety with large flowers and well-marked golden-brown blotches on the segments.

ODONTOGLOSSUM CRISPUM VAR. MEMORIA BULLI, t. DCCLXXX.—A very fine spotted crispum, with rather broad, slightly undulate segments, white, heavily blotched with chesnut-brown. Our readers will appreciate and sympathise with M. Linden's remarks on the career of the late Mr. Bull, which we cordially endorse. We could have wished, however, that the name given to this, one of the many "Moortebeek marvels," had been simply "William Bull."

EPIDENDRUM PARKINSONIANUM.

From the Royal Gardens, Glasnevin, we have received a flower of this species about 8 cent. across, which presented the following appearance: Sepals, two; lateral, free, spreading, narrowly lanceolate, recurved at the margins, dull yellow. Petals, two; pale yellow, antero-posterior at right angles to the sepals, connate at the base, and adnate to the column. The free portion of each petal is channelled and slightly ridged, the ridges running out into short tooth-like bright yellow processes. The limb of the lip is three-lobed, the lateral lobes petaloid, broad, rounded, pointed at one corner, the intermediate lobes linear pointed. The column is imperfect, confluent with the bases of the petals. The ovarian cavities opposite the sepals are two in number, lined with hairs resembling funicles, but with no perfect ovules.

ALPINE GARDEN.

PHLOX PILOSA.

WHILE none of us can fail to admire the late-flowering Phloxes which give so much brightness to our gardens in their time, it is to be feared that we are liable to neglect the claims of many of the species at one time more common in our gardens. There must be even among the late species which occur in North America several which could be cultivated with advantage were they procurable through the trade in the ordinary way. Too little grown also are some of the other species which yield their flowers in spring or early summer. Among these may well be named Phlox pilosa, a pretty species of taller growth than we are apt to associate with the season of the year at which it blooms, for it is in flower when the last of the P. subulata section is yet in bloom. This "downy" Phlox in its own country grows from 1 to 2 feet in height, and here it is almost intermediate between these two heights, although cultivated on a dry rockery, where, if anything, one would expect it to suffer from too scant a supply of moisture. It has, however, shown no signs of discomfort, and looks exceedingly healthy, and has flowered profusely. Its home was chosen from the knowledge that it grows naturally in dry soil, though this is not always a safe guide with some plants in our climate. It is on a sunny rockery, with its exposure almost due south, and elevated about 3 feet above the ordinary level. Here it looks very pleasing with its somewhat arching stem, surmounted by its large pale purple or lilac flowers, against its

background of evergreen foliage. From Britton and Brown's *Illustrated Flora of the Northern United States and Canada*, one learns that P. pilosa has a wide distribution, its habitat extending from Ontario to Manitoba, New Jersey, Florida, Arkansas, and Texas. Its flowers range in colour from white to pink and purple, and it blooms in America from April to June. Here it comes into bloom late in May. S. *Arnott, Carsethorn-by-Dumfries, N.B.*

The Week's Work.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Strawberry-plants for Forcing. — The strongest early runners can only be obtained from plantations made last autumn with well rooted runners, and from which all the flowers have been removed. Get in readiness 60-sized pots, new or quite clean, ram these full of stiff loam and leaf-mould, or some sort of artificial manure, leaving space for water, and let these be plunged in alternate alleys in double or triple rows; fix a runner on each pot with a stone or wooden peg, stop the strang at the runner selected, and in the absence of heavy rain afford water daily. When well rooted, repot into 5-inch pots for fruiting before the middle of March, and into 6-inch ones for later fruiting. These pots should likewise be quite clean or new, and be well drained. The finest Strawberries are produced by heavy loam mixed with a small quantity of finely-sifted old mortar. To light friable loams, add sifted Mushroom-bed dung in the proportion of one-quarter, and a quart of bone-meal, with another of Thomson's Vine Manure, to every two barrowfuls. Pot firmly and stand the plants in the shade for a few days and afterwards in a sheltered but sunny spot, with coal-ashes, coarse gravel, or boards beneath them. Attend to them daily, and when the pots fill with roots, apply weak manure water; keep them free from runners and weeds, restricting them to one good crown. Desirable varieties are, Vicomtesse Héricart de Thury, Royal Sovereign, Scarlet Queen, and Leader, which come in when forced in the order of their names.

Early Muscat Vines.—These Grapes will now be ripening, and a mean temperature of 65° to 70°, with air constantly afforded, should be maintained. Keep the border dry, and when the crop of Grapes is cut, clean the foliage and apply water to the border, in accordance with the directions for early Hamburgh Grapes.

The Hamburgh Vines.—As the fruit begins to mature, afford ventilation night and day, and keep sufficient heat in the heating apparatus to afford a temperature at night of 60°. Shorten all lateral growths to one bud, maintain the chief foliage clean by sponging the leaves if red-spider or other pests are observed, and damp down the paths and other bare surfaces. The borders having had manure-water afforded them, clear water only should be afforded at this stage, the aim being to have the border sufficiently moist till the fruit is removed from the Vines. A covering of hay or some other dry material may be placed on the soil in order to prevent evaporation to any great degree taking place.

Newly-planted Vines.—If these were planted from the middle of the month of May onwards with canes struck from the current year's eyes, or with cut-backs that were started in April, a certain number will be regarded as the permanent Vines, and others as supernumeraries to be taken away later. If the roots were properly spread out on the surface, mulched with fresh horse-dung, and covered with slates or flat stones, growth will have been rapid. A night temperature of 70°, rising 15° more in the day, should be maintained; the vinery kept moist but not close, and the plants syringed morning and afternoon. Let air be admitted early in the day, increasing it as the sun's heat gets more powerful. Let the permanent Vines grow without any stopping, and thus induce greater activity at the root. Stop the supernumerary Vines when half-way up the rafter, restrict all lateral shoots to two leaves, and pinch out the bud which comes at the stopping point; the one that will succeed that, will be much stronger, and should be allowed to grow on. This check to onward growth in the cane will throw greater strength into all buds below it, and add to the general vigour of the cane.

Cucumbers.—Plants raised from seed now will afford fruits till the end of the year, and thus render unnecessary the early fruiting of those sown a month later for supplying Cucumbers in the winter months. Choose a porous mixture of one-half turfy-loam and one-half rotten dung, and let the drainage be ample. The plants now fruiting should be well but not thickly furnished with young growths. Do not crop them overmuch; apply a dressing of horse-droppings, or an artificial manure. Syringe the plants daily, and keep a mean temperature of 65°. Put a pinch of sulphate of iron into the water occasionally.

Tomatos.—Afford the potted plants a dressing of turfy loam, mixed with some sort of artificial manure, say, nitrate of potash. Raise plants for winter fruiting, and grow them in a pit or house that is well ventilated, and not with Cucumber plants, &c., or fungus may attack the leaves.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Budleigh, Devonshire.

The Gooseberry. — Plants trained against north walls to lengthen the supply of this valuable dessert fruit, should have all breast-wood cut back to the third or fourth leaf, securing the leading shoots if there is space for them, and thoroughly washing the foliage with a garden-engine if at all infested with red-spider; then put on the nets, which must be kept a foot or so from the fruits with forked sticks, or the birds will be sure to do mischief. It is much more difficult to protect ripe fruits in the open from the feathered tribe, as nets, after once being put on Gooseberry bushes, are of little use afterwards, it being next to impossible to remove them to get at the fruit without tearing them. Where the bushes are under permanent wire netting, the crop will be safe, though it is questionable whether such heavy crops are had when thus enclosed. Fruits gathered from bushes freely exposed to the sun are much better flavoured than those from plants placed against a north wall.

The Raspberry.—This crop is a good one here. The late rains have greatly benefited the fruits, as well as the young canes that will supply fruit next season. Netting the rows is a necessity in some gardens, and some means must be devised to keep it away from the canes or the tops will get broken down, as the young canes are apt to push through the net and get damaged as well. Where posts and wire are used for securing the canes, it is simple enough to erect a trellis-work by nailing on each post a 3-inch square piece of wood 2 to 3 feet long, having a similar piece 4 feet long screwed on the top of this to form a T, and then fastening rods or laths 1-inch thick on to these the whole length of the row, and allowing the net to reach the ground on either side. Use the flat hoe to kill weeds, &c., before placing the net over the plants.

Hoeing. — Where it is not convenient to mulch the roots of trees growing against walls as well as in the open, the Dutch-hoe should be frequently worked between them, which to a great extent will prevent the soil from cracking, and will lessen evaporation. The same remarks apply to recently-planted Strawberries, or late borders that may not have been mulched.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Dendrobium Loddigesii (*D. pulchellum*).—This pretty though rather rare species is beginning to make its season's growth, and the present time is the most favourable for repotting and surfacing any plant that may require these attentions. The roots keeping mostly on the surface, very shallow pans should be used for the plants, these being well furnished with such drainage materials as the rhizomes of Ferns. Most of the leads are produced by the old pseudo-bulb, and these should be severed and placed on the surface of the pan and kept in position by means of pegs, and the plant built up of the desired size. A compost consisting of clean, chopped sphagnum, good turfy peat with the finer particles taken out of it, in equal proportions, should be used. Some of the compost should be placed on the drainage, and the young pieces securely fastened to it, a small quantity of the compost being pushed in firmly between the various pieces. When the plant is in active growth, frequent syringings should be applied, which will suffice in most cases as regards water at the root. Let the plants hang in the stove Orchid-house, and allow the early morning and late afternoon sunshine to reach them.

Dendrobium Brymerianum.—Any necessary repotting should be done as soon as the new growths are 3 inches high. Being such a moisture-loving species, the most suitable receptacles for them are pots or pans that have no holes in their sides. When repotting use equal parts of fibrous-peat and clean chopped sphagnum. Make the pots half full with the Fern rhizomes taken from the peat. Pot firmly, and keep the compost and the base of the plant on a level with the rim of the pot. Do not disturb this species unless the compost has got into a bad state; in other cases, re-surfacing with the above compost will suffice, after removing as much of the old material as may conveniently be done. The plants should be kept in the stove Orchid-house during the growing season, and need an abundance of water at the roots, and syringings on bright days. At no season of the year must they be kept dry, but may be rested by removing them into the intermediate-house when they have completed growth.

Dendrobium Parishi. — Any attention this species may require at the roots should be afforded at once. They succeed well in shallow pans, in fibrous peat and chopped sphagnum-moss in equal parts, with good drainage. If there are many old pseudo-bulbs, remove some of the older ones. I suspend this variety in the Cattleya-house, where the clear atmosphere is conducive to clean, hard growth. When the plants have made a good start, afford them water freely until growth is developed, then very little will keep them in a sound state afterwards.

Dendrobium primulinum is now advanced sufficiently to enable any necessary repotting to be done, in the same manner as advised above for D. Parishi. Grow the plants in the Cattleya-house, and very little fear need there be entertained of losing the new bulbs in the winter. Water should always be applied sparingly, even when the plants are growing. Afterwards it may almost be discontinued.

Odontoglossum grande, *O. Insleayi*, *O. Schlieperianum.*—These are now starting into growth and may be afforded what attention they require. Use a compost of two-fifths fibre-peat, two-fifths chopped sphagnum, and one-fifth good leaf-soil; mix these together well. The pots should be made one-half full with rhizomes from the peat, chopped up to make them go closer together. In potting, keep the compost on a level with the rim of the pot, and pot rather lightly; insert as a finish to the potting a few heads of living sphagnum, and afford water very carefully till the growth gets more advanced. Place the plants at the coolest end.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Richardias.—Plants of R. æthiopica in pots, which will be rested, as previously recommended, should receive no more water till new roots form, after being potted some weeks hence. The pots should now be turned down on their sides, with the crowns facing south, in a sunny spot, so that the latter may become thoroughly matured. The yellow-spathed forms, such as R. Elliotiana, R. Pentlandi, and all those which require more heat than the first-mentioned, should be placed on a sunny shelf under glass, and will forthwith, or very soon, be in a condition for being placed in a similar position out-of-doors, and water entirely withheld.

Hydrangeas.—Young plants of H. Hortensia grown for single heads of flower are very effective and useful, and in order to raise such plants for next year's flowering, cuttings of short, stocky, strong shoots, which have not flowered, should now be taken off with a heel, inserted singly in small pots filled with sandy soil, and placed in a cold frame to strike. If the latter is placed on a half-spent hot-bed, the striking will be more rapid.

Hardwooded Plants.—There may be still a few late-flowering Heaths and New Holland plants that require repotting forthwith, it being of importance that the roots permeate the fresh soil before September. Root action is rather slow with these plants, hence the need of timely repotting. See that the root-masses are thoroughly moist before repotting, and to make sure, if there is any doubt about this, let them be plunged for an hour into a vessel containing rain-water, then remove, and let them drain well before proceeding to pot them.

Achimenes.—Plants coming into flower should be afforded clear liquid manure occasionally. A cool temperature, with plenty of humidity, and as much shading as will prevent injury to the leaves, are conditions best suited to their requirements. Later batches of these plants should be staked and grown on under the lightest conditions possible without injury to the leaves, in order to induce short-jointed, sturdy growth, and flowers having good substance.

General Remarks.—There being now a little breathing time after the rush of repotting large numbers of plants, examine all kinds of plants liable to infestation by mealy-bug, thrips, and scale pests, which can only be kept under by the old methods of sponging, brushing, and washing under careful supervision. A few of the freest-rooting species of stove and greenhouse plants may need repotting, and among others Pentas carnea, a good winter-flowering plant. The shoots of Pentas, and Eranthemum pulchellum, should be stopped once or twice, according to degree of vigour, then if other cultural details are attended to, they make nice presentable plants. The house in which these plants are grown should be humid, but not close, shade being applied when necessary, and only then closing early for those plants which should make quick growth, and affording a small quantity of air late in the evening. Climbers must be trained at frequent intervals, and not first allowed to get into a tangle.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Mignonette.—If this fragrant plant is in much demand, and in perfect condition, a rather cool situation should be chosen for sowing it during the summer months, such as that afforded by a well cultivated piece of ground on the north side of a wall, where the mid-day sun cannot reach it. If sown in full sunshine the seeds may not germinate at all, or if they do, the plants would be poor and flowers few, and of short duration; whereas under the former conditions, healthy, strong, and large-flowered plants will in general result.

Chrysanthemums.—Early-flowering varieties that were planted in the month of May are making excellent growth, and very weakly shoots should be removed, the soil being kept free from weeds with the Dutch-hoe. Plants which are well established need not be afforded more water than will prevent the flagging of the foliage; later-planted ones should be afforded water freely during hot weather until established. Attend to the staking and tying of the plants, as if neglected, much injury may be caused by strong winds.

General Remarks.—Novelties in bedding plants should be planted in the reserve garden so as to be under observation. If bulbs for flowering in the spring are to be purchased, the amount of the orders should be decided upon and sent early to the florists or bulb merchants. The final planting of sub-tropical plants should be finished off, neatly staking and tying those that need it, and affording plenty of water on the completion of the job. Let every newly-planted tree be examined, and if stakes and ties are required, let them be seen to immediately; and loosen ties which are cutting into the bark, or any that are likely to cause abrasions, placing pads of cloth, leather, or hay between the stakes and the stems. Sometimes the ties are too loose and need tightening, too much play being as injurious as too little. Choice Rhododendrons should be afforded water copiously, in order that they may make rapid growth and form flower-buds early. If time will allow remove the seed-vessels from the plants, which will tend to strengthen the latter.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Parsley.—If the early-sown Parsley is sufficient to meet the demand of the cook, last year's plants may be dug up, Parsley being a soil-exhausting plant. Single out the plants in the lines which are intended for tranference to cold frames for winter use. If the Parsley-bed, or a portion of it, will be covered in the winter months with a skeleton frame and glass-lights, as advised in a former Calendar, then thin the plants to a distance of 6 inches apart.

Lettuce.—Make a final sowing forthwith of the variety White Cos, also of Black-seeded Bath Cos. If Cabbage-Lettuce find favour, Veitch's Early Gem or Golden Queen may be sown now, and Sutton's Commodore Nutt a month hence; this is still the best for very early and very late supply.

Early Winter Broccolis, &c.—Pull up early Peas directly the crop is cleared, if this be not already done. Upon retentive soils, the trampling afforded when the picking of the crop may have compressed the soil to such an extent as to render shallow digging necessary, previous to planting small-growing Savoys, Coleworts, &c.; but for early winter Broccolis and Autumn Giant Cauliflower, which will be planted at a greater distance apart, all the preparation required is to clear the land of weeds, and draw deep drills in which to set out the plants. In like manner, recrop the land that has been occupied with early Potatos as soon as it is available. Potato ground is best levelled by treading it all over, and then forking it where necessary to remove unevenness. Put out the plants early in the morning or late in the afternoon, according to the aspect, and afford them water. For several days afterwards, sprinkle the plants with water from a fine rose can, to prevent or lessen flagging.

Late Peas.—Although root waterings will be necessary in all soils except those that are very retentive of moisture, a heavy mulching of half-rotted farmyard manure will both lessen the labour of applying water and render the Peas less likely to take mildew.

Broad Beans.—Where these are infested with the black aphis, peculiar to them, the removal of the tops as I advised in a former calendar will have reduced the pest. To save the successional and late crops, dip the tops in Quassia extract or other non-poisonous concoction before the aphis descends the stalks, where they are difficult to dislodge. Afford a heavy mulching of half-rotted farmyard dung.

Kitchen-Garden Walks.—Where the walks are edged with Box, this should now be gone over with a pair of elbowed grass shears or garden hedge shears according to the strength of the Box, and clipped off evenly without cutting into the old wood. Where edging tiles are used, assuming that the walks have been dressed with weed-killer, pull up all weeds on the ground side of the tiles, clearing the soil away from the tiles with a spade to prevent it washing over on to the walks with heavy rain. When all edgings have been put in order, sweep the walks, pulling or hoeing up weeds, according to the nature of the gravel, and roll well after rain.

Hints on Work in General.—Peas and Broad Beans are making excessive growth of haulm at the expense of the pods, and in order to induce better podding, the tops should be nipped off of all forward plants, and those that have not turned in. Where the tops of the late Potatos have not yet covered the ground, let it be hoed shallowly, so as to check the growth of weeds, choosing a hot day for the job. Later on, the Potato-tops will smother all small weeds out of existence. Maintain a good supply of Lettuces by thinning the plants in the seed-rows, transplanting the thinnings on to other plots and aspects. Make another sowing of White Cos forthwith, and the last one of the same variety in the second week in July. Ply the hoe frequently between all kinds of crops whenever the state of the land permits—very necessary work in a season like the present.

THE APIARY.

By EXPERT.

Up-to-Date Apiarists.—The good bee-keeper will be following his bees with a good heart, knowing they are at last doing well, and his impulse will be to see they are all kept going by having full sections taken out and replaced with empty ones, honey extracted from shallow frames and the latter replaced. As regards skeps which keep swarming, cut out a hole at the top in the evening, and place on a box or small straw super, pasting it down with some dough made up like putty, to keep out draught, and prevent it from being blown over. It will be advisable just now, during the very hot weather we are having, to give the bees plenty of air, to prevent them swarming; open the entrances as much as possible, and raise up the body of the hive a little, propping it open with a little wooden wedge each side; and the same applies to skeps. Return all swarms coming out now, unless you wish to increase your stock. Keep a sharp look-out for the wax-moth, and destroy it whenever seen. Care should be taken in putting on sections that they are securely covered down so that no bees can get above and build honeycomb in the lid. When bees are doing well it is wise to let them alone. Place all honey taken in a clean cool spot, and do not be in a hurry about putting it on the market.

Purchasing Bees.—In doing this, get if possible a guarantee that the bees are healthy; but if you have any doubt in your own mind, seek the assistance of a fellow craftsman, and run no risk of getting disease in your apiary.

ROYAL HONOUR FOR A FLORIST.—Mr. BAGGERSEN, formerly in the Royal Gardens, Kew, now a nurseryman and florist at Cardiff, had the honour to present a bouquet of flowers personally to HER MAJESTY THE QUEEN, at Buckingham Palace, on June 9. It consisted of Orchids, Pancratiums, and sprays of Asparagus. Mr. BAGGERSEN is a native of the Queen's own country, Denmark, and Her Majesty expressed the hope that he would be successful in his business at Cardiff.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* EDITOR, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	JULY 15	National Sweet Pea Society's Show (2 days) Royal Aquarium.
WEDNESDAY,	JULY 16	Royal Botanical Society, Meeting. Combined Show of Royal Caledonian and Scottish Horticultural Societies, in Edinburgh.
THURSDAY,	JULY 17	Rose Shows at Halifax and Helensburgh.
SATURDAY,	JULY 19	National Rose Society, Exhibition, in conjunction with Manchester Royal Botanical and Horticultural Society's Show.

SALE FOR THE WEEK.

FRIDAY, JULY 11—
Orchids in variety at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —63·4°.

ACTUAL TEMPERATURES:—
LONDON.—*July* 9 (6 P.M.): Max. 73°; Min. 58°.
July 10.—Dull, rainy, warm.
PROVINCES.—*July* 9 (6 P.M.): Max. 63°, Scilly; Min. 48°, Orkney.

Fruit-trees by the Road-sides.

SOME of our correspondents are disposed to make merry over the proposal to plant fruit-trees by the road-sides. They say, and with much truth, that we have too much rubbish in the way of fruit already, that it is often unsaleable in the markets, that it offers a temptation to marauding boys that is too great to be resisted; that the trees would be badly planted, and that subsequent pruning and cultivation would be neglected, so that the results generally would be unsatisfactory. Granting a certain amount of truth in every one of these objections, we do not see why, with due care and proper precautions, these objections could not be minimised. We fancy that the objectors have not had the opportunity of seeing for themselves what is done in parts of Germany and Switzerland and France. So far as we have observed in those countries, the fruits planted are not tempting in the uncooked condition. A cooking Pear like Catillac, would be a trial even to a boy's teeth, but a school-boy is, we admit, not over particular what he eats in the way of fruit. The fruits indeed are not suited either for the exhibition or the dessert table, but they make excellent conserves, as any Swiss tourist knows or may know. Marauding school-boys are not very numerous except in the vicinity of towns and villages, and if the village policeman or the *garde champêtre* is not and cannot be ubiquitous, every villager has an interest in protecting the trees for the benefit of the commune, whilst a ring of barbed wire encircling the trunk is, as we have had the opportunity of seeing, a sufficient deterrent to the most agile school-boy. So watchful are the inhabitants of the Vine districts, that it is not much of an exaggeration to say that a tourist who merely stands and looks over the low wall enclosing the vineyards, is threatened with a monetary penalty if he does not "move on."

The following condensed extracts taken from a recent number of the *Bulletins d'Arboriculture, &c.*, will serve to show that our continental friends do not entirely share the fears which are excited here by the proposal to utilise our waste strips in suitable localities.

For instance, from a financial point of view, more than one commune is exempt, or almost exempt, from all local taxation; the revenues from the public plantations of fruit-trees being sufficient to cover the expenses of the local government.

Then, as to the proper planting and maintenance of the trees. There are on the continent, and might be in England, special courses of instruction open to those whose business it is to prune and manage the fruit-trees. Students entering undergo a strict examination, and they alone are authorised to attend to the plantations.

The trees cultivated must be those best suited to the soil of the district. Round Dresden, Cherries are the favourite fruit. The trees grow to a large size, and in the flowering season are very beautiful. Apples and Pears require manuring; in Saxony, the soil is trenched round the trunk, and in this trench, that is, from 0·40 to 0·50 m. wide, is poured urine diluted with water; farmyard-manure is not used. The varieties vary with the nature of the soil; the hardiest are preferred, and planted at from about 2 to 3 feet apart.

The Cherry in sandy soil is valued for the quantity and quality of its fruit; almost all the varieties are good, but sweet sorts sell better than the more acid ones. Standards, perhaps, yield better results than those that are low grafted. The trees live long, and become increasingly valuable.

As to Pears, those that best resist cold are chosen; winter varieties are most marketable. The Pear-tree is usually less prized than the Apple. The planting is done in September, and if the soil along the road is poor, well rotted, rich leaf-mould is mixed with it, or some better soil. The varieties most in use are Clapp's Favourite, Beurré Napoléon, Beurré Six, Beurré Diel, Bergamotte Rouge, Poire Truite, and Bonne Grise d'Ete. The Pears are trained as more or less regular pyramids and as standards. This form is convenient for reaching the fruit, but affords little shade, and is much exposed to wind.

Apples are more appreciated than Pears for roadside planting, especially winter and cider Apples, as they are less likely to be stolen; they also make less demands on the soil. The sorts most often met with are Astrakhan Rouge, Astrakhan Blanc, Consinot Pourpre, Court Pendu, Royal, and Ribston Pippin.

In Plums almost all the varieties are good, particularly the Zwetsche de Hongrie and the Belle de Louvain. Plums are much used in Germany, and as a preserve are often part of a labourer's diet. The results yielded by plantations of these fruits along the roads in Germany, where the system is well organised, are said to be excellent.

We may add that the renowned pomologist, M. CHARLES BALTET, is contributing to the *Moniteur d'Horticulture* a series of articles on this subject, in which he gives a long descriptive list of the sorts that he, with his large experience, deems suitable for roadside planting in different localities.

JAPANESE GARDEN AT GUNNERSBURY HOUSE, ACTON (Supplementary Illustration).—In our issue of April 5 this year, we gave a detailed account of this unique adjunct to the gardens of Messrs. DE ROTHSCHILD, mentioning numerous plants native of Japan, with which Mr. HUDSON, the gardener, had furnished it in true Japanese style. On May 10, a view taken from a different point was inserted, and in the present issue we insert yet another in which the peculiar feature, in the garden in Japan, the stone lantern, is conspicuous, with the stepping-stones leading up to it. The plant growth around consists of Aralias, Maples, Bamboos, and Rhodeas. The Ealing flower show, was held in these grounds on the 9th inst.

THE BOTANIC GARDEN, CAMBRIDGE.—Among the plants that have flowered, and have been, or will be published, from Cambridge material, are Aloe oligospila (*Bot. Mag.*, t. 7834), a new species raised from seeds collected by Dr. SCHWEINFURTH in Abyssinia, and received from the Zurich Botanic Garden; A. Camperi, also a new species from the same country, to be published in the *Botanical Magazine*; Bauhinia yunnanensis (*Bot. Mag.*, t. 7814), that climbs by means of its numerous side branches, which are coiled like a watch-spring; Aster Tradescanti (*Bot. Mag.*, t. 7825), the true Michaelmas Daisy; Solanum Xanti (*Bot. Mag.*, t. 7821), remarkable for the extraordinary variation of its leaves, introduced to Cambridge from Southern California; Clematis brachiata (*Gard. Chron.*, vol. xxx., p. 367), a Cape species; C. smilacifolia (*Gard. Chron.*, vol. xxx., p. 466), native of Sikkim Himalaya, and possessing large ornamental leaves; Plectranthus saccatus, introduced to Cambridge from the Cape (to appear in the *Botanical Magazine*), and Lobelia tenuior (*Gard. Chron.*, vol. xxix., p. 46). The Gourds on the herbaceous ground were exceptionally fine, and a full-paged plate, prepared from a photograph, formed a supplement to the *Gardeners' Chronicle* of December 21. The groups of hardy Opuntia, for some years the finest in the country, have been illustrated in the *Garden* (vol. lix., p. 429), and in the *Gardeners' Chronicle* (vol. xxx., 408, 409). The fine old Asparagus retrofractus in the temperate-house has been illustrated in the *Garden*. Other plants of interest that have flowered are Gerbera "Sir Michael," a fine yellow-flowered variety of Gerbera Jamesoni; Kalanchoe somaliensis (*Bot. Mag.*, t. 7031), received from Somali-land, a fine white-flowered species; Acacia Farnesiana, raised from seed collected in the Bight of Benin by the late Miss MARY KINGSLEY; Arctotis Gumbletoni (*Bot. Mag.*, t. 7798), one of the finest of the species; A. stoechadifolia (*Gard. Chron.*, vol. xxx., p. 109); Jasminum floribundum from Somali-land, and some hybrid Sarracenias which were exhibited at a meeting of the Scientific Committee of the Royal Horticultural Society.

GENISTA ÆTNENSIS.—Walking towards the pagoda at Kew, we saw in the distance a shrub whose appearance suggested a Casuarina. A nearer view showed that it was the Genista above named. The peculiar appearance in both cases is probably due to the dry climates in which they grow naturally.

View in the Japanese Garden, Gunnersbury House, Acton: photographed for the "Gardeners' Chronicle" by J. Gregory.

A MEANS OF KEEPING FLOWERS OF PÆONIES FRESH IN WATER.—According to a writer in *Kindergarten*, the blooms should be cut in the bud state, just before they would open if left on the plant. Each bud is wrapped in tissue-paper, of the same colour as the flower, for convenience-sake in selecting blooms, and the stalks placed in water, and then stood in a cold cellar—the cooler, the longer the blooms will endure. When the blooms are required, the butt ends of the stalks are cut off and put into fresh water, when the blooms open readily.

"AGRICULTURAL BOTANY."—We are pleased to welcome a second edition of Mr. PERCIVAL'S book as useful to horticultural students as to those for whose use it was more especially intended. Throughout, the practical requirements of the student are borne in mind, and he is not overwhelmed with technical details suitable for advanced research students, which will in due course prove of practical value, but which are at present beyond the scope of the cultivator. It is published by Duckworth & Co., 3, Henrietta Street, London, W.C.

FROM MESSRS. VEITCH'S NURSERY AT COOMBE WOOD, NEAR NORBITON, we received last week a box containing some very choice specimens, but the pressure on our space was so severe that we were unable to mention them. Many of them were shown at the Royal Horticultural Society's meeting on Tuesday last. Among the more remarkable were—

AZALEA VISCOSA.—Shrubby, leaves oblong, pointed at both ends; corolla fragrant, white, trumpet-shaped, with a long slender tube, and a five-lobed limb, revolute.

CÆSALPINIA JAPONICA, with pinnate foliage and terminal loose spikes of yellow flowers.

CORNUS KOUSA, is a very attractive Japanese shrub with glabrous oblong leaves, acute at both ends and with the usual curved venation of the genus. The flowers are borne on slender stalks at the ends of the young shoots. An involucre about 6 cent. across of four oblong white spreading bracts, surrounds the head of otherwise inconspicuous flowers. It is one of the most desirable of hardy shrubs.

CYTISUS SCOPARIUS.—Of bushy habit, with ascending branches, trifoliolate, nearly glabrous leaves, each leaflet oblong-acute about 2 cent. long; flowers yellow, pea-shaped, in long, loose, many-flowered terminal erect racemes.

CYTISUS SCHIPKENSIS.—Dwarf, with small, trifoliolate, glaucous leaves; oblong-acute leaflets, and heads of white, pea-shaped flowers.

ESCALLONIA LANGLEYENSIS ×. — A hybrid with obovate serrate leaves and terminal spikes of pale pink flowers. E. PHILIPPIANA, has small white flowers. It was first figured in *Gard. Chron.*, 1878, Vol. X., p. 109.

HEDYSARUM MULTIJUGUM has long, unequally pinnate leaves, with numerous small oblong pinnæ, and long-stalked racemes of violet-purple papilionaceous flowers.

KALMIA GLAUCA. — Shrubby, with linear, oblong, glabrous leaves, and leafy spikes of pink cup-shaped flowers, about 1 cent. across.

LONICERA SEMPERVIRENS.—With dark green leaves, glaucous on the under surface, roundish, sessile; flowers 3 to 4 cent. long, scarlet-crimson.

MAGNOLIA GLAUCA has shortly stalked oblong leaves, glaucous beneath, 3 to 4 inches long, 1½ inch wide, and small white flowers.

MAGNOLIA THOMSONIANA has shortly stalked, oblong, acute leaves, glaucous on the under surface, about 5 inches long, by 4 inches in width. The white flowers are 4 inches long, and very fragrant.

ONONIS FRUTICOSA, with trifoliolate leaves; leaflets linear, oblong, deeply serrate; flowers pea-shaped, pink, in terminal racemes.

PHILADELPHUS "MONT BLANC."—A small-flowered, free-blooming variety.

PTELEA TRIFOLIATA AUREA.—Remarkable for its pale yellow leaves; effective in a shrubbery.

RHODODENDRON FRAGRANS — Dwarf, with oblong leaves pointed at both extremities, and with pale lilac, trumpet-shaped flowers, about 3 cent. long.

ROBINIA HISPIDA, with pinnate foliage, and spikes of pale rosy-lilac pea-shaped flowers.

SAMBUCUS RACEMOSA, a variety with golden-yellow foliage, the leaflets or segments of which are deeply [illegible].

SPIRÆA SORBIFOLIA.—With pinnate foliage like that of S. Lindleyana, but with shorter, denser, more crowded flower-spikes.

STEPHANANDRA TANAKÆ, with rounded palmately-lobed leaves, the lobes acutely toothed and acuminate. The flowers are borne in loose panicles.

VERONICA ANOMALA.—A neat growing evergreen, with small linear, oblong, decussate, deep green leaves, and terminal heads of small white flowers. V. NUTKANA, with elongate, linear, lanceolate leaves, and terminal racemes of small white flowers.

VIBURNUM MACROCEPHALUM, has stalked ovate denticulate leaves, and dense globose heads of white sterile flowers. V. DILATATUM, has shortly-stalked, roughish, rugose, rounded-oblong leaves, and loose spreading corymbs of white flowers.

WEIGELA ARBOREA, Hort.—Flowers pale pink. W. BIFORMIS, flowers deep rose-pink, sometimes striped and blotched with white. W. CANDIDA, flowers pure white.

OPENING AND CLOSING OF TULIP FLOWERS.—It has generally been said that the movements of the perianth leaves of the Tulip are due to growth. Professor FARMER, F.R.S., shows that this explanation is hardly tenable, since a change from a cold to a warm room will cause closed flowers to expand, while a return to the cold air will produce closing. The movement is really due to the presence of special tissue on the outer face, towards the base of the perianth leaves. This tissue is similar to that found in the leaf of Dionæa, and has the power of rapidly increasing or decreasing the turgidity of its constituent cells, which consequently respond to change quicker than the adjacent tissues. To demonstrate the phenomenon, cut a fairly thick section down the median line of a petal of a young unopened flower. Place this in water to allow the cells to become turgid, when a movement takes place which is equivalent to closing. Then place in a fairly strong plasmolysing solution, about 4 per cent. KNO_3; a contrary movement will be observed which would cause the petals to open. "*The New Phytologist*," 1, 3, ex "*Pharmaceutical Journal*," June 7.

MR. G. WYTHES.—We learn that Mr. WYTHES, who for nearly three and a half years has had charge of the gardens at Alnwick Castle, as well as those at Syon House, is relinquishing the charge of the former, his health of late not having been very good.

"BOTANICAL MAGAZINE." — The plants figured in the July issue are—

Begonia angularis, of Raddi, tab. 7842.—It is described as a magnificent species of shrubby habit, flowering freely throughout the year in the Mexican-house at Kew. Leaves obliquely cordate, lanceolate; flowers very numerous, whitish, in terminal, loose panicles. Native of Brazil.

Muscari latifolium, J. Kirk, tab. 7843.—A species first made known during the Crimean War by Dr. (now Sir) J. KIRK, and of which we received specimens from Dr. PLAYNE from Renkioi in 1857. It is a very handsome species, with very broad leaves, and large dense spikes of dark purplish-blue.

Impatiens cuspidata, Wight and Arnott, tab. 7844.—The stem and branches of this fruticose species are covered with a whitish meal. In the specimen figured the nodes are thickened, and of a pale pink colour, contrasting strongly with the white internodes.

Cynorchis villosa, Rolfe, tab. 7845. — A Madagascan species with pink flowers.

Byblis gigantea, Lindley, tab. 7846; see HARROW in *Gardeners' Chronicle*, 1889, ii., p. 409; *et* 1900, ii., p. 351, fig. 109.—A very pretty Drosera-like plant, whose real affinities are very puzzling. It is probable that the glandular hairs with which the plant is beset do not really afford any evidence of genetic affinity.

REPORTS TO THE EVOLUTION COMMITTEE.—The first report to the Evolution Committee of the Royal Society, is on the experiments undertaken by W. BATESON, F.R.S., and Miss E. R. SAUNDERS. These related to the physiology of Heredity, as exhibited (*a*), in Plants, and (*b*), in Poultry. The plants with which the experiments were made were species of Lychnis, Atropa, Datura, and Matthiola. While the results obtained are exceedingly interesting, they are also complicated, and comment upon them in these columns must be deferred for the present owing to lack of space. We shall, however, return to the subject later on, merely remarking now that the experiments began in 1897 and are still in progress, so that further reports may be expected from the Society.

COMMISSIONS.—Some time ago you published in your columns some correspondence with regard to a proposed Act of Parliament entitled, "The Prevention of Corruption Bill." In case of this becoming law, we think it would be very interesting to know how it would affect our friends on the Continent. We enclose you with this a catalogue from a firm of nurserymen of Haarlem, Holland, which you will see has a pink circular enclosed in it stating that they allow a discount of 10 per cent. to all gardeners. If the modest douceur which custom permits in this country is to be done away with, and gardeners continue to be flooded with catalogues from abroad, accompanied by offers of this nature (and some have been brought to our notice offering as much as 15 per cent.), we think that it is liable to have rather a serious effect upon the traders in this country, in spite of the fact that this class of business is only carried on by inferior houses, and that the discounts in question are commonly made good by the inferior quality of the goods supplied. *J. R. Pearson & Sons.* [We do not publish the name of the particular firm, as we have reason to believe the practice is not confined to any one firm:—"To gardeners we allow a discount of 10 per cent., which amount will be sent to them by post-office order as soon as the amount of invoice has been remitted to us."]

"HOLIDAYS ON THE SOUTH COAST AND ISLE OF WIGHT."—Under this tempting title the Brighton Railway Company have issued a prettily illustrated booklet. The London, Brighton & South Coast Railway gives access to quiet as well as to popular and crowded resorts, so that there is something to suit all tastes. The tours, both long and short, are inexpensive, and extend over much of the most beautiful English country. The Railway also affords one way of reaching the Continent, the route taken being *viâ* Newhaven, Dieppe, and Rouen.

"HERBACEOUS PLANTS."—We are glad to announce the publication of the second edition of this useful list, issued from the Royal Gardens, Kew. It is doubled in size, as compared with its predecessor. English names have been added where practicable, and references to figures supplied. The total number of plants included is about 8,000, of which 1,000 are marked varieties. The erection of the new wing of the Herbarium has necessitated the abolition of the students' garden, where pupils in the elementary stage of their career were permitted to gather specimens for themselves. The old physic garden at Chelsea, and some of the County Council parks now

provide for the wants of this class of students. Nevertheless, we hope that when circumstances permit the old privileges will be renewed at Kew. The regulations, though no doubt strictly necessary, were in olden times discouraging to timid students, so that a separate students' garden was a great boon. Considering the class of persons for whom this list is mainly intended, it would have been well if the names of the authors of the species, and of the publications quoted, were written in full, or, if this would occupy too much space, that an explanatory list of the abbreviations made use of were prefixed to the volume. It would also much facilitate research on the part of those who have some acquaintance with the natural orders, if an alphabetical list of the genera could be furnished under the head of each order. Meanwhile, we are very thankful for what we have got—the fullest and most accurate list of hardy herbaceous plants in existence.

PLANT-BREEDING CONFERENCE.—We learn that Mr. J. R. NEWBOLD, a distinguished American amateur, who is taking great interest in the Plant-breeding Conference to be held in the autumn in New York, is likely to visit Paris and London shortly on business connected with the conference. Mr. NEWBOLD'S address, *pro tem.*, is care of Messrs. J. MUNRO ET CIE., Rue Scribe, 7, Paris.

REVUE HORTICOLE DE L'ALGERIE. — We have received the May number of the *Bulletin de la Société d'Horticulture d'Alger*, and are pleased to be able to comment favourably upon it. The contents include notes on a new Tangierine Orange, "La Clémentine," Plumbago capensis, varieties of Kaki, and reports upon the meetings and programme of the November exhibition of the Society.

EDINBURGH.—The Tulip beds formed in the Princes Street Gardens by Mr. MCHATTIE, attracted great admiration this spring, as also did those devoted to Narcissus. Mr. MCHATTIE received the hearty congratulations of the members of the Scottish Horticultural Association on his successful results in embellishing the City. Mr. MCHATTIE has also furnished a plan for laying out the grounds around the Colinton Mains Fever Hospital. The hospital consists of several detached blocks of buildings, each of which will be surrounded by its own strip of pleasure garden, and the whole enclosed by shelter-belts of trees, to give shade and afford protection from the wind. The general appearance is that of a small village enclosed within its own grounds.

ORDERS AND DECORATIONS. — There is assuredly some risk that these may become so numerous that their value as badges of merit may be impaired. No one will grudge any honour that may be bestowed on those who have in any capacity rendered signal service to the State; but it is time that some sense of appropriateness, congruity, and proportion was observed in the kind of honour conferred. At present the man whose claim to public recognition is the fact that he has been successful in business or speculation, that he has been an active municipal dignitary or a useful party politician, is accorded the same honours as the man of genius, the discoverer, the great writer, the historian, the poet, the man of science, the artist, or the man who is intellectually pre-eminent in whatever department it may be. The result, to say the least, is to produce a sense of incongruity which detracts from the "honour" intended to be bestowed. For these reasons, though we deprecate the undue multiplication of such marks of distinction, and should desire some consolidation of existing "Orders" so as to lessen their number, we nevertheless welcome the institution of the new "Order of Merit," but trust that it will be rigidly confined to those who have unselfishly manifested intellectual superiority in any department or in any social class. The first-named members of the new Order are:—Field Marshal Earl Roberts of Kandahar; Field Marshal Viscount Wolseley; General Viscount Kitchener of Khartoum; Lord Rayleigh; Lord Kelvin; Lord Lister; Admiral of the Fleet the Hon. Sir Henry Keppel; The Right Hon. John Morley, M.P.; the Right Hon. W. E. H. Lecky, M.P.; Admiral Sir Edward Hobart Seymour, G.C.B.; Sir William Huggins, K.C.B., P.R.S.; George Frederick Watts, Esq., R.A.—names of good augury for the future. A few notable omissions can readily be made good later on. The King is, of course, the head of the Order.

CANADIAN CORONATION ARCH.

THE Canadian Coronation Arch in Whitehall is the largest and most imposing of the decorations erected in London. It is 60 feet wide by 56 feet high, the arched opening in the centre being 25 feet wide, flanked on either side by open octagonal features draped and festooned, the whole structure being capped

FIG. 9.—CANADIAN ARCH.

by an open lantern with roof of crown formation. In the centre of the structure and immediately under the lantern the word "Canada" appears, and then just below the word Canada there is an inscription of the words "Britain's Granary;" while immediately over the arched opening, standing out in bold relief, are the words "God save our King and Queen." Arrangements had been made for an elaborate scheme of electric lighting, by which the arch would have been illuminated with one brilliant blaze at night, had the unfortunate event which preceded the appointed date of the Coronation not occurred. This unconventional yet pleasing structure with its embellishments of grains, fruits, and flowers, was designed by Messrs. Walker & Ramsay, of Glasgow, who are the architects for the Canadian Pavilions at the Glasgow and Wolverhampton Exhibitions. In the carrying out of the work of the decoration they have had the able assistance of Mr. Hay, of the Department of Agriculture, Ottawa, who enjoys the reputation of being the most artistic decorator of cereal products in the Dominion of Canada. This arch is erected as a tribute to the King by the Canadian Government, but more particularly come under the management of the Emigration Branch of the Department of the Interior. Efforts are being made to persuade the Ottawa Government to allow the structure to remain in its present position for a month or so.

HOME CORRESPONDENCE.

CHRYSOGONUM.—In the new edition of the *Kew Handlist of Herbaceous Plants* just issued, the authorities have responded to an outcry for having English names added to the botanical names, and many are given; most of them well established, but some not desirable to establish. For instance, I regret that Kew should stamp with its authority such a name as "Golden Knee" for Chrysogonum. This absurd name, I believe, owes its origin to Linnæus, who derived it as if it was Chrysogonatum. The names Chrysogonus and Chrysogonum are well established in classical Greek, and can mean nothing but "born of gold." As a proper name, Chrysogonus was given to Perseus "the child of a shower of gold," and to his fabled descendants the Persians. Chrysogonum was also the Greek name of a plant with golden flowers, and may be compared with such English names as Golden Rod, Marigold, Goldilocks, &c. Dioscorides, book iv., ch. 56, fully describes the plant which some have identified with a Leontice, but Sibthorp makes it a Bongardia. Anyhow there seems no reason why the mistake of Linnæus should be perpetuated, though some well established names are founded on similar errors of derivation, such as Cowberry for Vaccinium, and Loose-strife for Lysimachia; but I think Golden Knee has no such claim as these have on the score of antiquity. Chrysogonus, as an epithet of Perseus, is translated by Ovid in Latin Aurigena; and I recollect a boy in school at Eton, who had not learnt his lesson, hazarding for the English of it "having ears on his cheeks." This raised a laugh at the boy's expense, but the error was hardly worse than that of Linnæus. *C. Wolley Dod, Edge Hall, Malpas.*

AWARDS TO HYBRIDS.—With regard to Mr. A. A. Peeters' letter which appeared in your issue of July 5, although I am not a member of the Orchid Committee, or in any way an Orchid expert, I venture to think that his assumption that the non-award of a certificate was "either an attack upon his personal honour or upon his methods as a trading firm," is utterly erroneous. It is quite true that, according to Mendel's law, a plant may be a true hybrid, although it presents only the "dominant" parental features, so that all signs of the other or "recessive" parent are invisible; but, surely, no one can expect a Committee of judges to give an award to such a plant, apparently an exact replica of a well known one, simply and solely on the strength of the raiser's assurance of its hybrid nature. Furthermore, as awards are made to my knowledge—and I speak as a member of the Floral Committee—for mere hybridism *per se*, not only for any special merit of form or colour which may result from the cross. The sole object of hybridising is to obtain new and improved types, and this being so, it matters little whether the hybrids be primary, secondary, or tertiary, so far as the Committee's opinion of their beauty is concerned; while if, as Mr. Peeters appears to assume, the award was merely determined by the appearance or non-appearance of combined parental characters, all of which must be in evidence to qualify, the puzzle would indeed be great, very beautiful things would be excluded and very ugly ones commended. Even if, as was possibly the case, the Orchid in question was disqualified owing to a doubt of its hybrid character being correctly indicated by the name attached, the character of one of the given parents not being in evidence, the Committee were fully within their rights in withholding an award. An award once given, is immediately published, not merely by the press, but by the attachment of a ticket during the show, and this practically carries with it the Committee's confirmation, or at any rate, acceptation of the accompanying name, which in this case it appears they did not see their way to grant. I quite agree with the Editor's remark as to the important issues opened up by this objection, in the light of Mendel's dis-

coveries, but I venture to think that the "first principles" which should guide the Committee should apply rather to perfection of form, habit, and colour than to mere "curio" combinations arrived at by hybridisation, and one of the very first principles must always be to aim at correct names, so that the records kept of the awards given may be as free as possible from confusion. *C. T. D.*

AN ORCHID WITH DOUBLE FLOWERS.—It would be interesting to know if there are many Orchids with double flowers. The only one I have ever seen is a plant of the butterfly orchis (Habenaria bifolia), belonging to Mr. Stabler, of Levens, near Milnthorpe, and found in this neighbourhood some three or four years ago by Mr. Stabler's son. So far, I have not had the pleasure of seeing the flowers this year, although I saw them in 1900 and 1901. The flowers are by no means as beautiful as the type, but resemble the double form of the old Columbine, only they are not so large. *W. J. Ireland, Kendal.* [Various double-flowered Orchids are alluded to in *Vegetable Teratology* in the back volumes of the *Gardeners' Chronicle*, in the *Journal of the Linnean Society*, in *Veitch's Orchid Manual*, and other publications. ED.]

SEQUOIA GIGANTEA PENDULA.—There exists in the pinetum at Bicton a specimen of this Conifer 33 feet in height, the bole girthing 26 inches at 2 feet from the ground. A tree of this variety may not be out of place in a collection of Conifers, but as an isolated specimen, it is, in my opinion, not a beautiful object. The plant was put into commerce in 1871, so that it is highly probable taller specimens are to be found in this country than the one alluded to above. *J. Mayne, Bicton.*

CARNATIONS.—After several years perseverance in my nursery, I have succeeded in obtaining some new varieties by crossing some of the best kinds. They have been greatly admired, and by an exhibit of twenty-five flowers I gained the Gold Medal at the Hamburgh Exhibition in 1901. The cultivation is very simple, and requires hardly any description. The plants grow quickly, are of robust habit, and produce, when properly treated, flowers equal to those of the Malmaison Carnation; and often their diameter measures 10 cm. As the existence of a large flowering Carnation is not known, I have great confidence that this beautiful novelty will please the lovers of flowers, and will be welcomed by both amateur and professional gardeners. The following six magnificent varieties are now established:

1. *Garten-Inspector Th. Rcimers.*—Colour somewhat darker than that of President Carnot, more brilliant and slightly fringed.
2. *Fräulein Anna Seyderhelm.*—Flowers dark yellow with brilliant red stripes.
3. *Frau Elisabeth Kirsten.*—Delicate pink with dark red stripes and spots.
4. *T. H. Königslieb.*—Brilliant fiery-red, with dark red stripes with the peculiarity that each stripe varies in width, so that often half of the flower is dark red in colour.
5. *Emil Neubert.*—Pale pink in colour, with brilliant red stripes, and spots of irregular size.
6. *John Nicolaysen.*—A very peculiar variety, pale yellow ground barred chiefly with slate; and also with brick-red tints. *Leonhard Girnet, Wandsbek, Octaviastr.*, 27.

JUDGING GRAPES BY DETAILED POINTS.—The communications which have recently appeared in the *Gardeners' Chronicle* on judging Grapes by detailed points are both opportune and interesting to Grape exhibitors, seeing that several most important contests are to be determined by point-judging in a month or six weeks at Shrewsbury. The maximum number of points allowed by the Royal Horticultural Society's code of judging are ten points for Muscat of Alexandria, and nine points for all other varieties. This being so, let us take a bunch of Muscat of Alexandria, size and shape of bunch, size and evenness, and colour of berries, the latter being covered with unrubbed bloom, are the points which, together go to make a perfect bunch of Grapes, whether black or white. Therefore, in these circumstances, the position of bunches possessing all the points indicated above, but varying more or less in point of size, would be determined by weight. In my opinion, size and shape of bunch should count first, say 5 points; size and evenness of berries next, say 3 points; colour and bloom of berries (including ripeness), 2 points, making a total of 10 points. The application of these points of excellence to other individual varieties of Grapes is simplicity itself, that is, in judging Grapes of the same variety. Of course, the "known quality" of the respective varieties staged in collections would receive due weight with the judges in making the awards. Having attended nearly twenty annual shows at Shrewsbury, I am able to speak with some authority as to the uniformly high standard of excellence of the Grapes and other fruit staged in the big collections, and, indeed, in the numerous fruit classes generally. The contests being so keen (as might be expected where liberal prizes are offered) as to necessitate the points being divided and sub-divided, in order to arrive at a proper decision, the exhibits being so close to each other in point of merit. *H. W. W.*

MALFORMED FLOWER OF CYPRIPEDIUM ROTHSCHILDIANUM.

To the student the occasional deviations from the customary condition frequently afford as much interest as the more ordinary conformation does. This is especially so in Orchids whose structure always excites attention. The key to their extraordinary conformation is often afforded by the deviations that occur under cultivation. In the flower of Cypripedium Rothschildianum sent us by Mr. Powell, of the Gardens, Hill Grove, Pontypool (see fig. 10), the following peculiarities may be observed. In place of two sepals, there are three, owing to the presence of two sepals, in place of the ordinary dorsal sepal. The lower portion of these sepals is marked like the lateral petals. In the centre of the flower is a single petal like the usual lateral petals in form and coloration, but placed in an erect position opposite the lip. The lateral petals are wanting. The column consists of one central stamen destitute of an anther and of two lateral stamens (not clearly shown in the drawing); in front

FIG. 10.—MALFORMED FLOWER OF CYPRIPEDIUM ROTHSCHILDIANUM.

is the stigma. The formula for this flower is therefore, S3 P1 A1 *a*2 *a*3. The arrangement may be thus represented:

P
S A1 S
*a*2 *a*3
L.
S

the second petal being the lip L. A1 is the central stamen of the outer row without an anther, and *a*2 *a*3 perfect stamens of the inner row as in the ordinary Cypripediums. In the paper on the floral conformation of the genus Cypripedium, *Journal of the Linnean Society*, vol. xxii, 1886, p. 402, wherein we described most of the variations from the normal structure then known to us, there is not one precisely like that which we now figure. *M. T. M.*

SOCIETIES.

ROYAL HORTICULTURAL.

JULY 8.—There was a very brilliant show on Tuesday last in the Drill Hall, Buckingham Gate, Westminster, at the usual fortnightly meeting of the Committees of this Society.

The most prominent feature was the exceedingly gay groups of hardy flowers, including Sweet Peas, a collection of which from Mr. PERCY WATERER was awarded the Society's Gold Medal. Carnations were also exhibited well, especially varieties of the Souvenir de la Malmaison type; a group of these from Lady NINA BALFOUR were of extra merit.

The Floral Committee recommended seven Awards of Merit, most of them being to plants that are cultivated out-of-doors.

The ORCHID COMMITTEE had fewer exhibits before it than there have been for some time past. The only award recommended to a novelty was a Botanical Certificate to Cirrhœa viridi purpurea, shown by Sir TREVOR LAWRENCE.

The most remarkable exhibit before the FRUIT AND VEGETABLE COMMITTEE consisted of some finely-developed fruits of Queen Pine-apple, from Lord LLANGATTOCK, The Hendre, Monmouth, to which a Hogg Medal was deservedly awarded. Messrs. BUNYARD & Co. had Cherries, Messrs. LAXTON had Strawberries, and there were some smaller miscellaneous exhibits.

In the afternoon there were elected to the Society more than seventy new Fellows; and afterwards a LECTURE by Lord ANNESLEY, upon Trees and Shrubs, was read by the Secretary. Mr. ARDERNE, from Cape Town, was present, and exhibited some most interesting photographs from his garden near Cape Town, some of which have been reproduced in our columns.

Floral Committee.

Present: W. Marshall, Esq. (Chairman); and Messrs. J. H. Fitt, C. T. Druery, H. B. May, J. Walker, C. E. Pearson, J. Jennings, J. W. Barr, G. Reuthe, W. Howe, C. R. Fielder, C. Dixon, H. J. Cutbush, J. A. Nix, C. E. Shea, W. P. Thomson, E. H. Jenkins, and C. Blick.

A beautiful exhibit of Sweet Peas, in about 130 glasses, was shown by PERCY WATERER, Esq., Fawkham, Kent. All the newest and best varieties were included in this collection, and the flowers were exceedingly well grown. The bench was draped with white, and the flowers placed over a pale green cloth. The highest award of the Society, a Gold Medal, was awarded the exhibitor.

HUGH ALDERSEY, Esq., Aldersey Hall, Chester, also exhibited twenty-six bunches of Sweet Peas.

Lady NINA BALFOUR, Newton Don, Kelso, N.B., exhibited plants and flowers of Souvenir de la Malmaison Carnations. The two-year-old plants bore ten flowers each, of first-rate size and quality. The plants themselves were most healthy looking and vigorous, being quite free from disease, and possessing well developed foliage from the base upwards (Silver Flora Medal).

A group of unusually well-grown plants of Carnation Cecilia, was shown by Lord ROTHSCHILD, Tring Park, (gr., Mr. E. Hill). The plants were in 7-inch pots, and the flower spikes, one to each plant, were from 4 feet to 5 feet high. The large yellow flowers were some of the finest we have seen of this popular variety, but it appeared an expensive system of cultivation (Silver Flora Medal).

Messrs. W. CLIBRAN & SON, Altrincham, exhibited a basket of plants of their new bedding Lobelia. It has exceedingly deep purple coloured flowers and a compact free-flowering habit.

H. J. ELWES, Esq., Colesbourne, exhibited flowers of a species of Crinum, from Santos, Brazil. The flowers were white, with a crimson stripe along the centre of each petal.

Messrs. R. VEITCH & SON, Exeter, exhibited a pretty Dianthus "Emilie Paré," with single pink flowers; also a spray of flowers of Lonicera Hildebrandti.

Messrs. E. PARSONS & Co., 6, Oxford Street, Swansea, exhibited Gloxinia hybrida calysifera "Lady Llewellyn." The flowers were white, and possessed a kind of double corolla, similar to that in double Campanulas.

Mr. PHILIP FRY, Addington, West Malling, Kent, sent a pretty Fuchsia "Coral," flowers coral-scarlet colour; also blooms of hybrid Diplacus, some yellow, and others red in colour.

Messrs. KELWAY & SONS, Langport Nurseries, Somersetshire, exhibited a beautiful lot of Delphiniums. The flowers of the following varieties were most attractive, John Thorpe, Miss Gower, Clara Stubbs, Queen Alexandra, pale blue, single; Edna May, Sara, Dorothy Kelway, blue and pink, single, a most charming flower; these are only a very small proportion of the number exhibited. Gaillardias from the same firm were very fine (Silver-gilt Banksian Medal).

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, exhibited sprays of a large number of ornamental trees and shrubs, including in the centre of these a fine plant of Dimorphanthus mandschuricus alba variegata (Silver-gilt Banksian Medal).

Mr. H. B. MAY, Dyson's Road Nursery, Upper Edmonton, exhibited some new decorative zonal Pelargoniums. The newest and best are Lord Ilchester, single, deep rosy-pink; Lady Ilchester, semi-double, pale shade of pink; Lord Kitchener, semi-double, vivid scarlet; Perfection, single, salmon-red colour, &c. (Silver Banksian Medal).

Messrs. WM. CUTBUSH & SON, Highgate Nurseries, London, N., showed new varieties of Souvenir de la Malmaison Carnations, especially fine being Mrs. Trelawny, Princess of Wales, &c. Among other varieties, Cecilia was well shown, also the well known Uriah Pike, &c. (Silver Banksian Medal).

Messrs. WM. BULL & SONS, 536, King's Road, Chelsea, exhibited some choice stove decorative plants in excellent condition, including Dracæna Goldieana, D. Doucetti, D. Victoria, with broad leaves of golden-eye low colour and green; also other new Dracænas, and a pretty plant of Ficus stipulata (repens) variegata.

Messrs. J. VEITCH & SONS, Royal Exotic Nurseries, Chelsea, exhibited some very pretty varieties of Rosa polyantha Queen Alexandra (has been described frequently); and Rito, rich pink, and Edna, very pale pink, make good companions for it. The varieties are from crossing Crimson Rambler with R. multiflora simplex and *vice versâ*.

Messrs. VEITCH also showed some choice flowering shrubs, which are described on p. 21.

Messrs. B. S. WILLIAMS & SON, Victoria and Paradise Nurseries, Upper Holloway, London, had a very pretty group of flowers of English Irises in many varieties.

Messrs. R. WALLACE & Co., Kilnfield Gardens, Colchester, had a group of hardy plants and flowers, including beautiful flowers of varieties of Calochortus, also Brodiæas, Lilium Thunbergianum, &c.

Mr. ARTHUR W. WADE, Riverside Nursery, Colchester, amongst hardy flowers, included pretty varieties of Delphiniums, and of Lilium umbellatum, also L. pardalinum, Campanula persicifolia Moerheimi, Gaillardias, Sweet Peas, Calochorti, English Irises, &c.

From J. FERGUSON, Esq., Weybridge (gr, Mr. F. W. Smith), was shown a group of flowers of Delphiniums, representing many varieties of different colours.

Messrs. HUGH LOW & Co., Bush Hill Park Nurseries, Enfield, had a group of plants in which were noticed Crimson Rambler Rose, a specimen plant of Phœnocoma prolifera Barnesii, Trachelium cœruleum, Codiæums, Ferns, &c., and some capital flowers of the newer varieties of Nymphæa (Bronze Bankian Medal).

In a group of hardy flowers from Mr. THOS. S. WARE, Ltd., Hale Farm Nurseries, Feltham, were excellent bunches of the new Campanula persicifolia Moerheimi; many varieties of Delphinium, herbaceous Phloxes, a few species of Sarracenias in pots, bunches of Lychnis Haageana hybrida, vivid scarlet colour; Aquilegias, &c (Silver Banksian Medal).

Mr. J. SURMAN, Victoria Nursery, Beckenham, showed extensively single-flowered Petunias in pots, well grown and flowered in a manner that is rarely observed nowadays. The plants showed considerable variety of colouring, but light tints and white predominated.

Mr. A. PERRY, Hardy Plant Farm, Winchmore Hill, London, N., exhibited a number of interesting species and varieties of hardy border plants, chiefly as cut flowers. Amongst them were finely-grown Mariposa Lilies (Calochorti), viz., C. Eldorado, C. E. rosæformis, C. E. sanguineus, and C. venustus oculatus; Ostrowskia magnifica, flowers finely developed; Heuchera sanguinea and other varieties; Iris, Brodiæa stellaris, Œnothera ocymoides, yellow blooms, with a black-brown central blotch; Gillenia trifoliata, Campanulas, Lilies, including the red-orange peruviana; Teucrium pyrenaicum, Gaillardias in variety, Campanulas, including the dwarf C. G. F. Wilson, a charming plant; Allium azureum, Hemerocallis, &c., Campanula grandis pallida, with heliotrope coloured flowers; also a fine mass of Asperula longifolia. (Silver-gilt Banksian Medal).

Messrs. CANNELL & SONS, Home of Flowers, Swanley, Kent, showed a large number of single-flowered tuberous rooted Begonias as grown in pots, and amongst them some abnormally large flowers, as for example, Col. Stanley Arnold, Mrs. Brook Taylor, Lady Constance Hatch, Capt. Bedingfield, Seymour Lucas, Lady Wyndham, and Lady Mary Currie. A so-called Butterfly strain has arisen, the flowers having white spots on a scarlet ground colour, but the flowers want improving in various directions to make the strain entirely pleasing. Some good examples of crested varieties were also shown, and every plant was abundantly flowered (Silver Banksian Medal).

Messrs. BARR & SONS, King Street, Covent Garden, W.C., and Ditton, Surrey, showed extensively hardy herbaceous perennials as cut flowers, and a number of single-flowered Petunias as grown in pots. Among the former we noted a number of Lychnis Haageana, Potentilla Vesuvius, a yellow edged scarlet, semi-double flowers; Sidalcea malvæflora, having spikes of pink flowers; Erigeron glandulosus, Iris aurea, very showy yellow; and I. Monnieri, the yellow of a paler tint than the foregoing; numerous varieties and species of Delphiniums, Gladiolus, border Pinks in variety, Gaillardias, Centaureas, the showy Ixia Humbert, flowers of a deep rosy-crimson colour; and other Ixias; Sweet Peas, &c. (Silver Banksian Medal).

Mr. M. PRICHARD, The Nurseries, Purewell, Christchurch, Hants, showed a very crowded table of hardy herbaceous perennials in great variety. Shrubby Phlox Eclaireur, purplish-crimson, was a showy thing; Achillea millefolia rubra, Potentilla W. Rollisson, yellow and scarlet flowers; Erigeron speciosus major, many species of Campanula, Delphiniums, including the showy blue-flowered D. chinense; Eryngium giganteum, Chrysanthemum maximum var. M. Prichard; Pink Hogarth, Alstrœmeria aurantiaca, Gladiolus Colvilli, Clematis recta in beautiful clusters of flowers, and Iris Kæmpferi (Silver Banksian Medal).

Messrs. B. R. CANT & SONS, Colchester, showed a group of Seedling Roses, including R. sinica Anemone, H. B. Maharajah, raised by the exhibitors; R. polyantha Eugénie Lamesch, H.T. Nancy Christy, a flower of a soft pink tint; H. P., Ben Cant, well adapted for bedding, of a bright rich crimson tint, a large flattish flower; T., Mrs. B. R. Cant, a flower of a soft purplish-pink; H.T., Killarney, light pink; T., Souvenir Wm. Robinson, buff and pink tints, a small, compact flower; H. T., Liberty, a rich crimson, of a pretty form, with a small, good bud.

Mr. JNO. RUSSELL, Richmond Nurseries, Richmond, Surrey, exhibited in a large semi-circular group a number of well-grown stove and greenhouse foliage plants, such as we are accustomed to see from this nursery. Codiæums, Dracænas, and Caladiums, formed the chief part of the exhibition (Silver Flora Medal).

AWARDS OF MERIT.

Alstrœmeria, Mrs. Salter.—A very pretty variety with bright scarlet flowers, the upper segment striped red on yellow ground. From J. H. SALTER, Esq., Witham.

Border Carnation, Lady Carrington.—A flower of very fine form, large size, and delicate pink colour. From MARTIN R. SMITH, The Warren, Hayes, Kent (gr., Mr. C. Blick).

Cordyline (*Dracæna*), *Her Majesty.*—Leaves 2 inches broad, bronzy-green, with red margins. From Mr. H. B. MAY, Edmonton.

Delphinium, Kitty Wardall.—An excellent double-flowered variety, colour blue and mauve. From Messrs. KELWAY & SONS.

Lobelia tenuior (*coronopifolia*).—Under the latter name some plants of a Lobelia were shown by Mr. J. T. BENNETT-POE, Holmewood, Cheshunt. The plants were 18 inches to 2 feet high, and the flowers blue, with white centre. It was found to be identical with L. tenuior, a new plant, illustrated in the *Gardeners' Chronicle*, January 19, 1901, p. 46.

Polypodium triodes ramocristatum.—A bold Polypode, with fronds about 20 inches high, and finely developed crests. From Messrs. W. BULL & SONS.

Rose Frau Karl Druschki.—A Hybrid Perpetual introduced from Germany. Flowers of very large size, white, petals exceedingly wide. An excellent and robust grower. From Messrs. B. R. CANT & SONS.

Orchid Committee.

Present: Henry Little, Esq., in the chair; and Messrs. Jas. O'Brien (hon. sec.), De B. Crawshay, J. Colman, H. T. Pitt, J. Gurney Fowler, J. W. Potter, W. A. Bilney, J. Douglas, W. H. White, W. H. Young, E. Hill, G. F. Moore, and F. W. Ashton.

As usual at this season there was a decided falling off in the number of the exhibits, and although there were some tolerably distinct plants shown, the Committee found none entitled to an award except a very fine specimen of the singular Cirrhœa viridi-purpurea, with about a score of its pendent spikes of insect-like flowers, shown by Sir TREVOR LAWRENCE, Bart. (gr., Mr. W. H. White), and to which a Botanical Certificate was given.

Captain G. L. HOLFORD, C.I.E., Westonbirt (gr., Mr. Alexander), showed Lælio-Cattleya × Earl Grey, a fine hybrid of unrecorded parentage, and not yet grown up to its best. The flowers had sepals and petals of a rosy-lilac colour, and a superbly coloured lip, almost entirely of a rich maroon-claret colour, with a reddish tint in the centre.

The Right Hon. Lord ROTHSCHILD, Tring Park (gr., Mr. E. Hill), showed Odontoglossum × Wilckeanum Tring Park variety, a very large flower with whitish fringed flowers, evenly spotted with cinnamon-brown; and Cattleya Gaskelliana alba.

Sir F. WIGAN, Bart. (gr., Mr. W. H. Young), showed a pretty light form of Cattleya × Germania (granulosa Schofieldiana × Hardyana).

W. A. BILNEY, Esq., Fir Grange, Weybridge, showed a flower of a very dark purplish-crimson tinted form of Cattleya × Hardyana, the singular feature in which was that it retained the light patches on the disc of the lip so familiar to us in C. Warscewiczii, one of the parents, but showed little of the yellow veining of C. aurea, the other.

Messrs. JAS. VEITCH & SONS, Chelsea, showed Cattleya Warscewiczii Countess of Derby, with pure white sepals and petals, and the purple lip of typical C. Warscewiczii; also Lælio-Cattleya × C. G. Roebling albida (L. purpurata alba × C. Gaskelliana), a beautiful hybrid with white sepals and petals, and dark rose-purple front to the lip.

Messrs. WILLIAM BULL & SONS, Chelsea, showed Cattleya Mendeli Souvenir de William Bull, a pretty flower of a blush-white colour, the crimped labellum being almost pure white.

Messrs. HUGH LOW & CO., Bush Hill Park, were awarded a Silver Banksian Medal for a good group of excellent forms of Cattleya Mossiæ, including the pure white C. M. Wageneri, C. M. Reineckiana, white, with coloured lip; and the new C. M. alba "The Queen," a pure white flower, of fine substance, with chrome-yellow disc to the lip, in front of which are a few delicate lavender markings. Messrs. Low also showed the blush-coloured Cattleya Mendeli Princess of Wales, Lælio-Cattleya × Schilleriana, L.-C. × Aphrodite, and other hybrids.

Messrs. SANDER & SONS showed Zygonisia × Rolfeana superba, with whitish flowers, finely spotted with violet, and far superior to that shown by them at the Holland House Show; two elegant plants of Platyclinis filiformis, a dark form of Lælio-Cattleya × Martineti (C. Mossiæ × L. tenebrosa), showing, as usual, the peculiar features of L. tenebrosa invariably seen in hybrids of it; a spike of Cypripedium Parishi with nine flowers—an unusually fine example; the new and distinct Lælio-Cattleya × conspicua (L. Digbyana × C. Leopoldi), with greenish sepals and petals tinged with rose, and furnished with a few purple spots, and with the broad front of the lip and column of a rich purple tint.

Messrs. B. S. WILLIAMS & SONS, Holloway, showed hybrid Cypripediums, Angræcum Scottianum, Lælio-Cattleya × Canhamiana Ed. Andre, &c.

Sir W. MARRIOTT, Blandford (gr., Mr. Denny), sent Disa × Diores (Veitchi × grandiflora). R. I. MEASURES, Esq., Camberwell (gr., Mr. Smith) showed the singular Pleurothallis saurocephala.

Fruit and Vegetable Committee.

Present: H. Balderson, Esq., chairman; and Messrs. Jas. H. Veitch, H. Eslings, S. Mortimer, Alex Dean, Geo. Kelf, Thos. Coomber, F. Q. Lane, Jas. Smith, Geo. Wythes, A. H. Pearson, and W. Wilks.

Fifteen excellent fruits of Queen Pine apple were shown by Lord LLANGATTOCK, The Hendre, Monmouth (gr., Mr. T. Coomber), which were deservedly awarded the "Hogg" Medal, the highest award the Fruit Committee can recommend.

Messrs. GEORGE BUNYARD & Co., Royal Nurseries, Maidstone, exhibited about a dozen pot trees of Cherries, and picked fruits of thirty varieties. Among the pot trees was one of the new variety Windsor, a large fleshy black fruit; other good ones were Bigarreau Napoleon, Noir de Schmidt (very fine), Elton Heart, &c. (Silver Knightian Medal).

Messrs. LAXTON BROS., Bedford, exhibited a fine lot of Strawberries, illustrating their valuable varieties, Trafalgar, and The Laxton. The latter variety which obtained a First-class Certificate on June 18, 1901, is a decided improvement upon Royal Sovereign, as we remarked in last week's issue. The fruits shown on Tuesday were the latest of this variety; some of the earlier fruits were stated to have weighed 2oz. each.

Amsden June Peach was shown by Mr. JNO. CROOK, Forde Abbey Gardens, Chard, whose earliest fruits in a cold Orchard-house were gathered on June 26.

A seedling Melon "Western Hero," was shown by Mr. W. STRUGNELL, Rood Ashton Gardens, Trowbridge, Wilts. It had scarlet flesh and good flavour.

Some very fine Mushrooms were shown by Miss ADAMSON, South Villa, Regent's Park (gr., Mr. Geo. Kelf). Some of the crust of the bed was shown with them, and it was possible to see how plentiful the crop had been (Cultural Commendation).

Several fruits of Lord Beaconsfield Apple, a very hard, red-coloured fruit were shown by Mr. J. WATKINS, Pomona Farm, near Hereford (Vote of Thanks).

From the HORTICULTURAL COLLEGE, Swanley, Kent, the gardener, Mr. Patterson, exhibited fine plants of Carter's Endive-Lettuce, a pretty variety with cut leaves.

Lecture on Ornamental Trees and Shrubs.

In the afternoon a paper by the Earl of Annesley, upon the above subject, was read by Rev. W. Wilks, M.A. The principal plants described by his Lordship were of the class generally considered half-hardy or tender in most parts of these islands. That all of them have been found to succeed in the open at Lord Annesley's garden in co. Down is proof of the exceeding care bestowed on them, and of the exceptional conditions of soil and climate that are enjoyed by the locality. The average rainfall there is 32 inches each year, and the average winter frost is not more than 10° Fahr., whilst injurious spring frosts are rarely experienced. The subsoil is gravel, the garden has a considerable slope, and the natural drainage is perfect. The garden is well sheltered by forest trees, and being but three miles from the Channel, it is within the influence of the Gulf Stream. Many of the most interesting plants from Lord Annesley's garden have from time to time been figured in our columns from photographs contributed by his Lordship.

The paper will be printed in the Society's *Journal*, and we need not therefore refer to it in detail here. Mr. H. J. ELWES did well to caution the hearers in respect to the difference between Lord Annesley's garden and the majority of gardens in England; but as it is never safe to say that a certain plant will not succeed in a locality until it has been given a trial there under the best conditions, those who love plants should not hesitate to plant a few, at least, especially as the less hardy trees and shrubs enumerated by Lord Annesley possess such uncommon beauty.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JUNE 5.—There was a magnificent display of plants on this occasion, and several noteworthy plants came before the committee.

A. WARBURTON, Esq., Haslingden, afforded the Society and visitors a sight of his beautiful plant of Odontoglossum crispum var. Luciani. This lovely variety, when shown two years ago, was thought to be worthy of a Gold Medal, an award which was made to it, but at the last meeting the plant was shown in such excellent form that the committee regretted they could give it no higher award. No description of the flower is necessary here, it having been given on several occasions; but it is only fair to the plant and the owner to say that it stands in the front rank of "spotted" crispums. The flowers, ten in number, were each 4 inches in diameter, the claret-coloured markings being confluent so as to form almost one blotch on each segment: the back part of the flower has a rich suffusion of dark purple, and would probably be considered by some persons to be more striking than the front.

From the same collection came the lovely plant staged at the Temple Show, viz., Odontoglossum crispum var. ardentissimum; this received a First-class Certificate. Many judges differ as to this plant's identity; some maintain that it is a form of O. crispum, while others say it is a hybrid between a spotted crispum and O. Pescatorei; and at the Temple Show I heard O. luteo-purpureum suggested as being one of the parents. To all intents and purposes it is a pure crispum, and a valuable addition to this numerous section.

M. A. A. PEETERS, Brussels, received a First-class Certificate for Odontoglossum × nobilius, a beautiful form of L. × loochristiense; and an Award of Merit for Lælio-Cattleya × Canhamiana Peeters' var., a beautiful form with pure white sepals and petals.

S. GRATRIX, Esq. (gr., Mr. G. Cypher), exhibited a rare plant in Odontoglossum Pescatorei var. virginalis, a chaste form with a pale yellow blotch on the lip (First-class Certificate).

An Award of Merit was given to the same amateur for Odontoglossum crispum var. Gratrixianum, a closely flowered spotted form.

Mr. GRATRIX also received Awards of Merit for Odontoglossum crispum "West Point var.," Lælia tenebrosa "West Point var.," and Lælio-Cattleya × "General Baden Powell."

R. ASHWORTH, Esq. (gr., Mr. Pidsley), staged a very nice group of plants. Odontoglossum crispum var. Calypso was a gem, one of the spotted type, and received a First-class Certificate; Lælio-Cattleya × Canhamiana var. Ashlandensis received an Award of Merit.

O. O. WRIGLEY, Esq., Bury (gr., Mr. Rogers), sent an unique collection to the meeting. This consisted of thirteen plants of Lælia majalis in bloom, and it was refreshing to see this rather difficult subject so well dealt with; one form was deemed worthy of an Award of Merit. A Bronze Medal was awarded to the group.

Messrs. CHARLESWORTH & Co. staged a good lot of plants, and received a First-class Certificate for Cattleya × Jupiter (C. Lawrenceana × C. gigas), one of the best things yet produced from C. Lawrenceana. The same exhibitors received Awards of Merit for Odontoglossum vexillarium var. albescens, Lælio-Cattleya × Lady Wigan, and Odontoglossum × elegantius.

Dr. HODGKINSON, Wilmslow, exhibited Lælio-Cattleya × Phœbe superba, a distinct improvement on the hybrids previously seen here of this class.

Messrs. HUGH LOW & Co. obtained an Award of Merit for Cattleya Mossiæ var. Arnoldiana sub var. superba; and a similar award was given to T. BAXTER for a good form of Odontoglossum × loochristiense.

The Hon. Mrs. Bass received an Award of Merit for Odontoglossum crispum var. Mrs. Hamar Bass.

MEDALS AWARDED.

Silver Medals were awarded to Messrs. ASHWORTH and CHARLESWORTH, for groups; and Bronze Medals to Messrs. WATSON, DUCKWORTH, and CYPHER. *P. W.*

JUNE 19.—S. GRATRIX, Esq., Whalley Range (gr., Mr. Cypher), staged a few good plants, amongst which was a fine form of Lælio-Cattleya × Lady Wigan, also Lælio-Cattleya × Canhamiana. An Award of Merit was voted for a specially good form of Odontoglossum crispum var. Xanthotes, and a Bronze Medal for the group.

R. BRIGGS-BURY, Esq., Accrington (gr., Mr. Wilkinson), sent a charming group of plants, many gems being contained therein. The best was undoubtedly the beautiful Cattleya Mossiæ var. Reineckiana var. magnifica, which received a First-class Certificate, the same award being voted to Odontoglossum crispum var. Empress of India; O. crispum "La Belle Alliance" and O. c. var. "Irene" received Awards of Merit. A Silver-gilt Medal was voted to the group.

R. TUNSTILL, Esq., Burnley (gr., Mr. Balmforth), exhibited Cypripedium × Winifred Hollington and C. × Edithæ, both of which have been previously dealt with by the committee.

Mrs. S. GRATRIX exhibited a good form of Cattleya Mossiæ called "Lord Roberts," a nicely formed flower.

W. THOMPSON, Esq., Stone (gr., Mr. Stevens), staged a few well-grown Odontoglossums, one variety of crispum called "splendidissimum" gaining an Award of Merit and a Cultural Certificate. A good feature in the display was several fine pans of Cochlioda Nötzliana, beautifully grown and well flowered; these also received an Award of Merit and Cultural Certificates. Bronze Medal was awarded to the group.

Mr. A. J. KEELING, Bingley, Yorks, exhibited Lælio-Cattleya Vinesiæ and Cypripedium × Sir Geo. White, amongst a nice group, for which latter he was awarded a Bronze Medal. *P. W.*

THE NEWCASTLE AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

JUNE 18.—The monthly meeting of the above society was held at Newcastle, on the above date. Mr. ROME, gardener at Clove House, Wylam-on-Tyne, read a paper on Vine culture, dealing extensively with the various details. The houses recommended for general purposes were those constructed so as to run east and west. For early work, a lean-to, facing south was desirable.

The principal items in the successful culture of Vines, being soil, manure and water, the construction of the border, the best manures for the purpose and periods between waterings, were ably described. Temperatures were also given for the different periods, and the best methods of ventilation under various conditions. *H. J. E.*

ROYAL OXFORDSHIRE HORTICULTURAL.

JUNE 23.—Seeing that this Society was instituted in 1830, this was in point of time its seventy-second exhibition, and it was held by permission of the Warden in the grounds of Wadham College. Though not one of the oldest collegiate foundations, yet Wadham dates back for a considerable number of years. The gardens have the appearance of having been at one time an old orchard, and contain some very fine trees. A huge specimen of the Tulip Tree now in bloom, noble Walnuts, magnificent Evergreen Oaks, an ancient Judas Tree, fine cut leaved Oaks, &c., together with many choice flowering shrubs.

The exhibits were contained in two spacious tents, and though the entries were not so numerous as usual owing to the Coronation festivities having necessitated the Commemoration Show being held on a Monday, there was yet a good display.

In the plant classes the principal one was for a group arranged for effect, filling a space of 150 feet superficial. The 1st prize was taken by Mr. J. JOHNSON, Garsington Nurseries, who had a square arrangement, with a cone-centre, surmounted by a Palm. Mr. W. T. MATTOCK, florist, Headington, was 2nd.

CROYDON HORTICULTURAL.

JULY 2.—The grounds of Birchwood House, Croydon, the residence of Percy T. Reed, Esq., and close to the town, were the scene of the summer show of the Society on the above date. The various classes were from some reasons poorly filled, and Roses, usually so fine and plentiful here, were comparatively few.

In the trade classes Messrs. W. BURCH & SONS, Peterborough, were the chief competitors, taking 1st prizes in the classes for forty-eight singles, twenty-four trebles, twelve Teas and Noisettes, one variety, Miss Edith Gifford, and of H.P.'s one variety, with La France. Mr. T. BUTCHER, of Croydon, took the 1st prize for twenty-four single-flowered Roses.

In the amateurs' classes, Mr. C. J. Salter, gr. to Mrs. T. B. HAYWOOD, Woodhatch Lodge, Reigate, was a good 1st in the class for thirty-six singles, taking the fine 25-guinea Vase for the third time, and becoming its possessor. In the boxes, a capital bloom of the old Xavier Olibo was selected for the National Rose Society's Silver Medal, as the best in the show. There were also good flowers of A. K. Williams, Gustave Piganneau, Ulrich Brunner, Captain Hayward, White Lady, and Helen Keller. Mr. E. M. BETHUNE was 2nd. Mr. SALTER also had the best twenty-four blooms; Colonel PITT, Maidstone, coming 2nd.

Mr. BETHUNE had the best twenty-four Teas and Noisettes, Mr. SALTER being 2nd. Amongst the flowers were The Bride, Madame Cusin, Maman Cochet, Mrs. Mawley, Princess Beatrice, Alba rosea, and Innocente Pirola.

ROYAL SOUTHAMPTON HORTICULTURAL.

JULY 1, 2.—The usual summer show of the Royal Southampton Horticultural Society was held on the Royal Pier, and the exhibits were numerous and good, more especially in the Rose and Vegetable classes.

Groups of miscellaneous plants arranged for effect, made a pleasing display in the centre of the pavilion. Mr. E. WILLS, 136, Above Bar, Southampton, was easily 1st with a characteristic exhibit, good in colour effects, and the lightness with which the plants were arranged. Mr. T. Hall, gr. to Sir S. MONTAGUE, President of the Society, South Stoneham House, Southampton, was a good 2nd.

Orchids formed a distinct feature, and Messrs. HOOLEY BROS., Bitterne Park, was 1st for a group of these plants arranged for effect, and consisting of Cattleya Harrisoni violacea, C. Warneri, and Odontoglossums in variety.

Specimen plants were not many, and the best in the class for four came from Mr. T. HALL. Ferns, on the contrary, were numerously shown. Mr. F. M. VOKES, Birch Lawn, Sholing, was 1st for four almost faultless examples.

ROSES.

These may be considered as the chief feature of the show, and Mr. G. PRINCE, Longworth, Oxon, was almost invincible, securing the majority of the 1st prizes. The flowers shown by him were of moderate size, fresh, and well coloured. For thirty-six, he showed fine examples of Bessie Brown, Bridesmaid, La France, Souvenir d'Elise Vardon, Marquise de Litta, Mrs. J. Laing, and Catherine Mermet. Messrs. D. PRIOR & SONS, Colchester, were 2nd.

For twelve triplets, Mr. G. PRINCE had Marie Van Houtte, Maman Cochet, Princess of Wales, Souvenir de S. A. Prince, and Souvenir d'un Ami; and for twelve Teas we noted Mrs. E. Mawley, The Bride, Bridesmaid, and Maman Cochet among his best flowers. Messrs. PRIOR were placed 2nd in each of these competitions.

Mr. G. W. Kent, gr. to Mrs. C. CROFT MURRAY, Perivale, Ryde, was 1st, for six blooms of any one dark-coloured Rose with superb examples of Marquise de Litta; Mr. G. PRINCE following with the same variety. Mr. KENT was also 1st for six of any one light-coloured variety, with Madame Abel Chatenay.

The last exhibitor won the premier award for eighteen varieties, distinct, in the Gardeners' and Amateurs' Class, with clean, fresh looking blooms of popular variety.

Mr. Neville, gr. to F. W. FLIGHT, Esq., Cornstiles, Twyford, Winchester, was 1st for twelve Teas, with a stand of even sized blooms, Mrs. E. Mawley, Catherine Mermet, Marie Van Houtte, Niphetos, and The Bride, being noteworthy in this stand.

Miss M. SNELLGROVE, Oxford Road, Southampton, was 1st for a basket of Roses, a very satisfactory exhibit.

Miss WADMORE, Brook House, Basingstoke, won easily the much-coveted 1st prize for a dressed stand or epergne.

FRUIT.

This was shown in moderate quantity; and vegetables were numerous and excellent, no fewer than forty-one collections were shown.

COUNTY BOROUGH OF HANLEY HORTICULTURAL FETE.

JULY 2, 3.—Under the most favourable conditions of weather this popular horticultural gathering was opened on the 2nd inst. Four spacious tents were required to accommodate the exhibits. Mr. Joseph Kent, the superintendent of the park at Hanley, who acts as secretary and superintendent, made admirable arrangements. There was an opening ceremonial by Captain Wedgwood, who bears a name honoured in the potteries; and after the judges had completed their work, a big luncheon party sat down in one of the tents, under the presidency of the Mayor of Hanley.

GROUPS OF PLANTS.

Groups of plants arranged for effect were a leading feature, and there were some six competitors in the class, occupying a space of 300 feet. Mr. JAMES CYPHER, nurseryman, Cheltenham, was 1st, and set up a group rich in finely coloured Crotons and Orchids; G. H. TURNER, Esq., Littleover, Derby, was 2nd; and Mr. J. Read, gr. to Earl CARNARVON, Bretby Park, Chesterfield, was 3rd.

With a group of Orchids Mr. J. ROBSON, nurseryman, Altrincham, was placed 1st; he had Cattleyas in variety, and some pretty forms of Odontoglossum crispum, Lælia tenebrosa, and its variety aurea; various Cypripediums, &c.; Mr. JAMES CYPHER was 2nd.

With a group of Carnations, Mr. J. ROBSON was the only exhibitor, having the old pink-coloured Malmaison in fine character.

For six plants in flower, Mr. JAMES CYPHER was 1st. He had Dracophyllum gracile, Erica ventricosa grandiflora, E. Aitoniana, Statice profusa, Clerodendron Balfourianum, and Phœnocoma prolifera Barnesii, finely coloured. Mr. W. VAUSE, Leamington, was 2nd. With six plants in flower and for six having fine foliage, Mr. J. CYPHER was again 1st; Mr. W. VAUSE was 2nd.

ROSES.

The display of Roses was of a limited character. Messrs. DICKSON & SONS, Newtownards Nursery, Belfast, was 1st of two competitors with seventy-two varieties; and Messrs. W. TOWNSEND & SON, nurserymen, Worcester, 2nd.

With forty-eight varieties, Messrs. TOWNSEND & SON were 1st; and Mr. W. H. FRETTINGHAM, Beeston, 2nd.

With thirty-six varieties in trebles, Messrs. TOWNSEND & SONS were the only exhibitors.

Collections of Garden Roses, fresh and bright, made up for the paucity of blooms in some of the other classes. Messrs. TOWNSEND & SON were 1st with eighteen and also with nine bunches; Messrs. DICKSON & SON, Newtownards, were 2nd in both classes.

FRUIT.

The leading class for fruit was a decorated dinner-table, on it to be placed not more than fourteen dishes of fruit selected from a published list, plants in pots, cut flowers, and foliage being required, the whole judged according to a schedule of points. Mr. J. H. GOODACRE, The Gardens, Elvaston Castle, Derby, was placed 1st. He had Black Hamburgh, Madresfield Court, White Muscat, and White Frontignan Grapes; Royal George, Waterloo, Bellegarde, and Early Crawford Peaches; Early Rivers, Spencer, Lord Napier, and Elruge Nectarines, and two Melons; and he came out with an aggregate of 95 points, viz., Grapes 13, Melons 13, Nectarines 24, Peaches 20, beauty of flowers and foliage 6, harmonious blending of colours 6, general arrangement 5; a maximum of 8 points being allowed in the case of the three last named properties. Mr. J. McIndoe, gr. to Sir J. W. PEASE, Bart., M.P., was 2nd; and Mr. J. Read, gr. to Earl CARNARVON, Bretby Park, Chesterfield, 3rd.

There was also a dinner-table decorated with flowers and fruit, and here Messrs. HODGKINS & Co. were 1st and Mrs. W. OVERTON, West Smethwick, 2nd.

The best twelve dishes of fruit came from Mr. JORDAN, gr., Impney Hall, Droitwich, who had Black Hamburgh and White Muscat Grapes, Royal George Peaches, Lord Napier Nectarines, Figs, Melons, &c.; Mr. J. H. GOODACRE was 2nd.

The best display of English and foreign fruit made by fruiterers in the Potteries and Newcastle was a fine and representative one, but the name of the exhibitor did not appear. It included fine bunches of Bananas, Oranges, and Apples in variety, Pineapples, Figs, Cherries, Strawberries, Cranberries, Lychees, &c.

The best four bunches of Grapes came from Mr. W. NICHOLLS; he had two each of Buckland Sweetwater and Black Hamburgh. Mr. T. BOLTON came 2nd, with Hamburgh and Muscat.

Mr. JORDAN had the best two bunches of Black Hamburgh Grapes, nicely finished, and Mr. NICHOLLS came 2nd.

The best two bunches of any other black was Madresfield Court, from Mr. MCKNIGHT.

Mr. NICHOLLS came in 1st with two bunches of Muscat of Alexandria, and Mr. MCPHERSON was 2nd.

Vegetables were shown in several classes; the special prizes offered by Messrs. SUTTON & SONS and E. WEBB & SONS brought good competitions.

MISCELLANEOUS EXHIBITS.

Gold Medals were awarded Mr. A. J. BRUCE, Chorlton, Manchester, for a collection of Sarracenias; to Mr. H. ECKFORD, Wem, for a collection of some 100 bunches of Sweet Peas; to Messrs. REAMSBOTTOM & Co., Geashill, Ireland, for a collection of St. Brigid Anemones; to Messrs. HEWETT & Co, nurserymen, Solihull, for hardy flowers; and to Messrs. JACKMAN & SON, nurserymen, Woking, for the same, and also for alpine plants.

Silver Medals were awarded to Mr. R. SYDENHAM, for Sweet Peas; to Messrs. JARMAN & Co., Chard, for cut flowers; to Mr. W. SYDENHAM, florist, Tamworth, for hardy flowers, including Violas; to Messrs. PATTISON & SON, florists, Shrewsbury, for Violas; to Messrs. JAMES & SON, nurserymen, Shrewsbury, for Sweet Peas; and to Messrs. HARRISON & SONS, nurserymen, Leicester, for cut flowers.

THE NATIONAL ROSE, EXETER.

JULY 4.—A fine display was afforded to those who visited the beautiful grounds of Northernhay on the occasion of the National Rose Society's first visit to Exeter, and although the lateness of the season and other adverse circumstances somewhat affected the number of entries, many of these, staged by the leading Rose-growers in the land, were of great merit.

For forty-eight blooms, distinct varieties, confined, as were the first eight classes, to nurserymen, Messrs. D. PRIOR & SONS, Colchester, secured the Silver Cup with the following Roses: *Back row*, Suzanne-Marie Rodocanachi, Mrs. R. G. Sharman Crawford, Mrs. John Laing, Marquise de Litta, Mrs. Cocker, White Maman Cochet, Gustave Piganneau, Mildred Grant, Comte de Raimbaud, Lady Mary Fitzwilliam, and Madame Gabrielle Luizet; *Centre Row*, Marguerite Boudet, E. Y. Teas, Mrs. W. J. Grant, Marchioness of Downshire, Marchioness of Londonderry, Bessie Brown, Camille Bernardin, Maréchal Niel, A. K. Williams, &c.; *Front row*, Duke of Edinburgh, Ulster, Comtesse de Nadaillac, Eugène Fürst, Liberty, Madame Lacharme, La France, Cleopatra, Fisher Holmes, Maman Cochet, &c. Messrs. B. R. CANT & SONS, Colchester, were 2nd, with a collection very little inferior; Messrs. F. CANT & Co., 3rd; and Messrs. A. DICKSON & SONS, Newtownards, Co. Down, Ireland, 4th, their stand containing the best Hybrid Perpetual in the nurserymen's section, viz., Marchioness of Downshire.

There were classes for twenty-four and for twelve blooms, but our space does not permit us to detail the other exhibits, nor to repeat the names of the Roses.

TEA AND NOISETTE SECTION.

For twenty-four Blooms, distinct varieties, 1st, Mr. G. PRINCE, with, *Back row*, Maman Cochet, the best Tea in the nurserymen's classes, The Bride, Rubens, Mrs. Edward Mawley, and Souvenir d'Elise Vardon; *Centre row*, Comtesse de Nadaillac, Ernest Metz, Princess of Wales, Souvenir d'un Ami, Madame Cusin, &c.; *Front row*, Muriel Grahame, La Boule d'Or, E. V. Hermanos, Jean Ducher, Innocente Pirola, and Princess Beatrice. 2nd, Messrs. F. CANT & Co.; 3rd, Messrs. D. PRIOR & SONS.

OPEN CLASSES.

There was no competition in Class 9; that for new seedling Roses did not fill.

For Teas and Noisettes, twelve distinct varieties, three blooms of each.—1st, Mr. G. PRINCE, with The Bride, Bridesmaid, Maman Cochet, White Maman Cochet, Cleopatra, Madame de Watteville, Souvenir d'Elise Vardon, Souvenir de S. A. Prince, Mrs. Edward Mawley, Souvenir d'un Ami, and Comtesse de Nadaillac; 2nd, Messrs. F. CANT & Co.

For twelve blooms, one variety, Teas and Noisettes.—1st, Mr. G. PRINCE, with fine Comtesse de Nadaillac; 2nd, Messrs. F. CANT & Co.

[illegible] Messrs. PAUL & SON, in whose exhibit were included R. sinica Anemone, Irish Glory, R. polyantha [illegible]teen, and R. rugosa America.

AMATEUR'S SECTION.

For twelve blooms, distinct varieties.—1st, Rev. J. H. PEMBERTON, with, *Back row*, Mrs. John Laing, Horace Vernet, Francois Michelon, &c.; *Centre row*, Danmark, Mrs. W. J. Grant, and Gustave Piganneau; *Front row*, Suzanne-Marie Rodocanachi, Mrs. E. Mawley, White Maman Cochet, and Bessie Brown; 2nd, Mr. A. HILL GRAY, whose stand contained the best Tea in the amateur's section, Souvenir d'Elise Vardon; 3rd, Mr. C. JONES.

For twenty-four distinct varieties.—1st, Mr. A. HILL GRAY, with, *Back row*, Maréchal Niel, Maman Cochet, White Maman Cochet, Anna Olivier, Souvenir de S. A. Prince, and Cleopatra; *Centre row*, Golden Gate, Catherine Mermet, Medea, Souvenir d'Elise Vardon, Madame Elie Lambert, and Hon. Edith Gifford; *Front row*, Ernest Metz, Souvenir d'un Ami, Madame Cusin, Comtesse de Nadaillac, Muriel Grahame, The Bride, &c.

TEAS AND NOISETTES.

For eighteen distinct.—1st, Mr. A. HILL GRAY, with White Maman Cochet, Maman Cochet, Comtesse de Nadaillac, Souvenir d'Elise Vardon, Bridesmaid, Muriel Grahame, The Bride, Golden Gate, Maréchal Niel, Souvenir de S. A. Prince, Mrs. E. Mawley, Jean Ducher, Princess Beatrice, La Boule d'Or, Medea, &c.

A feature in the Rose tent was the many hundred blooms exhibited (not for competition), by Messrs. CURTIS, SANFORD & CO., Devon Rosery, Torquay. The exhibit covered a space of 25 feet by 6 feet, and contained superb Teas. Regret was generally expressed that the firm had not entered in the competition, as they would, undoubtedly, have been well up in the prize list. In this collection Viscountess Folkestone, Rev. A. Cheales, Mrs. Sharman Crawford, Bridesmaid, Comtesse de Panisse, Beauté Inconstante, and Empress Alexandra, were very good.

GLOUCESTERSHIRE ROSE.

JULY 8.—The fourteenth annual show of this Society was held on the above date, and although the exhibits in the nurserymen's classes were not so numerous as in some previous years, owing to the attractions of the Wolverhampton meeting held on the same day, the display was a highly creditable one.

In the open classes, the 1st prize for forty-eight distinct varieties was awarded to Messrs. ALEX. DICKSON & SONS, Newtownards, County Down, the most noteworthy blooms in this splendid collection being Mildred Grant, Alice Lindsell, Killarney, Mrs. John Laing, Robert Scott, Caroline Testout, and two Roses not yet in commerce, Lady Ashtown (a distinct pink), and Florence Pemberton (a white-shaded pink). Mamie was well shown both in the 12 singles and in the 24 trebles, for which they took 1st prize. This noted Irish firm, which has such a world-wide reputation both as growers and raisers of new Roses, practically took the lead in all the classes in which they exhibited. Mr. JOHN MATTOCK, Oxford, took six 1st prizes, and a 2nd, and Messrs. TOWNSEND & SONS, Worcester, five 2nd prizes and a 3rd.

THE WOLVERHAMPTON FLORAL FETE.

JULY 8, 9, 10.—Under the most agreeable conditions of weather the fourteenth annual exhibition was held in the West Park on the above dates, the tents being pitched close by the Industrial and Art Exhibition now being held in the town, and payment to the Flower Show gave admission to the Exhibition also. Under the management of the corporation gardener, Mr. Webster, the park, always admirably kept, was exceedingly gay with bright flower-beds, and the magnificent display of Caladiums and other foliaged plants staged in one of the tents showed conclusively how well adapted are the new glass arrangements in the park to the purpose of growing tender stove and greenhouse plants in the best manner. The judges awarded a special Gold Medal to this collection.

The display showed no falling off, there was fine quality and brilliance on every hand. The tents are light, lofty, and roomy, they are connected one with the other; each division of classes is grouped by itself, and the children's section was even more attractive than ever.

The Mayor, Mr. C. P. Plant, presided at the luncheon, and though the speeches had to be made with the accompaniment of a military band, the proceedings passed off with success.

PLANTS.

Groups arranged for effect formed a fine feature, and especially those in the open division. There was a keen competition, but Mr. JAMES CYPHER maintained his supremacy, staging as usual in his perfect style flowering and foliage plants which rivalled each other in brilliancy; Mr. G. H. KENDRICK, Edgbaston, Birmingham (gr., Mr. Macdonald), was 2nd, with a group arranged on similar lines to that of Mr. CYPHER; and Mr. W. VAUSE, Leamington, was 3rd. Gentlemen gardeners and amateurs in their respective divisions set up charming groups of plants, and in respect of this particular feature, Wolverhampton furnishes excellent object lessons to young gardeners.

The class for sixteen stove and greenhouse plants brought fine collections. Mr. CYPHER was 1st, with fresh and bright examples of Kentias Forsteriana, Belmoreana, australis; Latania borbonica, and Crotons mortfontainensis and Chelsoni; and of flowering specimens, Ericas ventricosa, Bothwelliana, very fine; E. Candolleana, Statice profusa and intermedia, Bougainvillea glabra, a splendid Phœnocoma, Ixoras Regina and Williamsii, Stephanotis floribunda, and Dracophyllum gracile. Mr. W. VAUSE was a good 2nd, and Mr. W. FINCH, Coventry, 3rd.

Mr. G. H. KENDRICK was 1st with six exotic Ferns, having good examples of Nephrolepis davalloides, Davallea polyantha, Dicksonia antarctica, &c.; H. LOVATT, Esq., Bushbury (gr., Mr. R. Sharp), was 2nd.

With six Palms, Mr. CYPHER was again 1st, with fine examples of Kentias, Latania, Phœnix, and Thrinax elegans—the only one in the show. Mr. VAUSE was 2nd, and Mr. G. H. KENDRICK 3rd.

A class for twenty plants in pots not exceeding 8 inches in diameter, made an attractive feature. Mr. CYPHER led the way with such subjects as Ericas, Ixoras, Crotons, Pandanus, Acalypha, &c., all very bright; Sir P. A. MUNTZ, Bart., M.P., Rugby (gr., Mr. W. Blakeway), was 2nd with a very good collection. With twelve plants, not fewer than six in bloom, Mr. CYPHER was again 1st, and Mr. VAUSE was 2nd.

Collections of Begonias formed bright patches in the large tent. Mr. F. DAVIS, Pershore, a noted local grower, was 1st with double and single forms of very fine quality; Mr. T. G. BAKER, Compton (gr., Mr. H. Thursby), was 2nd; and Mr. G. H. KENDRICK, 3rd, both with very good groups.

CUT ROSES

came next in the order of the schedule, and there was a remarkably good show of this flower. There were five exhibits of seventy-two blooms distinct. Messrs. FRANK CANT & CO., Colchester, were placed 1st with flowers bright in colour and deep in petal, the renowned Bessie Brown and the *élite* of exhibition novelties being observed. Messrs B. R. CANT & SONS, Colchester, were a very good 2nd With forty-eight varieties, Messrs. B. R. CANT & SONS were placed 1st out of six exhibitors, their blooms were fresh, bright and massive; and Messrs. HARKNESS & CO. were 2nd.

Mr. G. PRINCE had the best twelve Tea-scented varieties, and Messrs. D. PRIOR & SON were 2nd.

The best six varieties of Sweet Briars were shown by Mr. G. PRINCE; and Messrs. PERKINS & SONS were 2nd.

Nine vases of Tea-scented Roses also made a pretty feature, and Mr. G. PRINCE came in 1st, Messrs. J. TOWNSEND & SON were 2nd.

The best arrangement of hardy border plants came from Messrs. R. WALLACE & CO., Colchester; Messrs. HARKNESS & SON, Bedale, were placed equal 1st, with a very attractive exhibit, but much crowded.

In the class for a display of plants and floral arrangement, in which the Wolverhampton Silver Challenge Trophy is offered, together with a cash prize, Mr. J. H. WHITE, nurseryman, Worcester, was placed 1st, and having won the trophy also in 1900 and 1901, it becomes his property; Mr. J. E. KNIGHT, Wolverhampton, was a close 2nd.

Mr. T. G. BAKER, Compton, had the best display in Pansies and Violas, prettily arranged in vases; Messrs. HARKNESS & SONS were 2nd.

Floral decorations included a dinner-table for eight persons. Messrs. M. JENKINS & SON, Newcastle, Staffs, took the 1st prize; Messrs. E. & H. SUCKLING, were 2nd. Bouquets were finely shown in several classes.

Pinks and Carnations were shown in two classes. The best arrangement in Sweet Peas came from Messrs. JONES & SON, Shrewsbury, who had bouquets, epergnes, &c.; Messrs. GILBERT & SONS, Bourne, were 2nd.

The 1st prize for eighteen bunches was awarded to Mr. R. PRAZZAM, of Shiffnal.

Mr. V. B. JOHNSTONE, The Wergs, took the 1st of Mr. Henry Eckford's special prizes for Sweet Peas shown in twelve bunches; and Mr. W. SHROPSHIRE, Market Drayton, the 1st of Mr. R. Sydenham's special prizes for the same number.

Obituary.

WE regret to learn that Mr. Osman, gardener and farm bailiff at the South Metropolitan District School, Surrey, has recently lost his wife, after a long and painful illness. Four months ago Mr. Osman had the misfortune to lose his second son, who was in the employ of Messrs. Veitch, of Exeter.

THE ROSE CONFERENCE.

(*Concluded from p. 8.*)

THE following is a condensed abstract of the papers read at the Holland House Rose Conference on Tuesday, June 24:—

HYBRID TEAS.

"Hybrid Teas" formed the subject of Mr. ALEXANDER DICKSON'S paper. He said, that in the early years of his work as a hybridist he formed the opinion, now justified, that Hybrid Teas would take the first place among Roses. The paper treated of the numerous varieties of the class under consideration, then introduction, raisers, and so forth, under the following headings:—

(1.) Single-flowered Roses for garden and general decoration.
(2.) Bedding Roses, semi-double.
(3.) Bedding Roses, double.
(4.) Pillar and climbing Roses.
(5.) Exhibition Roses.

Afterwards, when dealing with the work of the hybridist, Mr. Dickson spoke of the expenditure of labour and money that it entailed, and the difficulties that are met with. For instance, the firm to which he belongs, out of some fifty thousand seedlings raised, has found barely a hundred which could be put upon the market as useful varieties. Furthermore, Mr. Dickson summed up his own experience as follows:—'I have studied the question of hybridisation in its many aspects, and practically applied and tested everything which a long experience could suggest, and yet I have to confess as the result of almost a life's work, that I have failed to reduce to a certainty a single theory for the production, either in form, fragrance, or colour, of a seedling containing even one characteristic that the hybridist desires it should contain."

THE SENSITIVENESS OF CULTIVATED ROSES TO CHANGES OF WEATHER.

In speaking of Roses, Mr. EDWARD MAWLEY, V.M.H., pointed out that no other plants so largely grown were so greatly at the mercy of the weather. Human skill, when once they have been put into place in the garden, can do very little; indeed, some measures taken serve only to increase the evils they are intended to ward off, and may even cause others which the plants would otherwise have escaped. All the trouble is due to the fact that Roses are, after all, only half-hardy plants, and could a race of really hardy varieties be obtained, the difficulties of growing them successfully would in a great measure disappear.

Mr. Mawley instanced the special case of a "Bennett's Seedling" in his possession, which has grown to a great size, and is unharmed by the most cruel winters or the severest of spring frosts. With the generality of Roses, temperature is the most potent factor, and this alone was considered. Severe winters are dangerous, but moderate cold induces a necessary period of rest; while great mildness, as tending to deprive the plants of this repose, is undesirable. In the case of dwarf Roses, the plan of placing soil over the crowns in winter was advocated. The greatest trial of the Rose-grower is when the winter having been successfully gone through, cold and dry weather is met with, and at the last moment he fails to realise his ambition.

THE CULTIVATION OF ROSES UNDER GLASS.

The last paper presented to the meeting was read by Mr. GEORGE MOUNT, who discussed the culture of Roses under glass, both in pots and in the soil. The first method is the best for early forcing when blooms are, for instance, required in February; and also from an economic point of view, for the plants can be moved out of the house to make way for a Tomato crop in summer, and Chrysanthemums later on in the year. "Hybrid Perpetuals" will give but one crop; "Hybrid Teas" will furnish a succession. Mr. Mount's method of cultivation is to take the young plants from out-door beds at the end of October, or the beginning of November; they are then potted in 8-inch pots (10-inch pots were formerly used, but the others were found to be big enough, and they are more easily moved), in a carefully-prepared soil consisting of turfy-loam two parts, well rotted manure one part, sand, wood-ashes, and bone-manure one part.

The pots are well drained; the place where the plant was budded is, if possible, covered with soil which is well rammed into the pot. The plants are kept in a cool frame or under a sheltered wall until it is time to prune them. This, if the flowers are wanted in February, will be early in the November following the potting, when the plants are pruned very hard and brought into the house. If the weather is cold, the pipes are kept just warm and the plants lightly syringed, the object being to get them to start growth as naturally as possible.

After the leaves have begun to show, Mr. Mount, unlike other growers, never syringes them, to which he attributes the fact that his foliage is clean and unmarked. Fumigating must be employed on the first appearance of green-fly, and before this has had time to leave marks behind it. Plants should be raised sufficiently strong as to need no staking. Mr. Mount produced many thousands during the present year,

and not a single stick was used. The great importance of looking after the plants when they have done flowering was emphasised. They must be carefully hardened off, and well supplied with water. Methods of dealing with pests were then considered, as well as the best varieties to force, and the most suitable houses in which to grow them.

BEST VARIETIES FOR FORCING.

Mrs. J. Laing, La France, Captain Hayward, Mrs. S. Crawford, Ulrich Brunner, Rothschild, General Jacqueminot, Madame Mortel (?), Caroline Testout, Mrs. W. J. Grant, Catherine Mermet, Niphetos, Anna Ollivier, The Bride, Perle des Jardins, and Bridesmaid.

The house favoured by Mr. Mount is of the span-roof type, and 20 feet wide, with a sunken path on each side, which leaves two side borders 4 feet wide, and a centre bed 8 feet across. The same treatment was recommended for Roses grown in soil as for those reared in pots.

A number of other contributions were prepared for the Conference, but in the absence of their authors, were not read at its meeting. By the courtesy of the Rev. W. Wilks, Secretary of the Royal Horticultural Society, we are able to give the following brief notices of some of the various papers.

ROSE FORCING IN THE U.S.A.

Miss ANNE DORRANCE, of Dorranceton, U.S.A., sent a most detailed and illustrated account of the methods adopted for the forcing of Roses in America. Types of houses are first considered, and a form of sash-bar described, which is furnished with grooves to carry off water formed by condensation. The mammoth houses of the Floral Exchange of Philadelphia, at Edgeley, come in for a share of attention; one measures 54 feet by 300, is planted with 10,000 Rose-trees, and from it 20,000 Roses a month are sent to market. A second house in course of construction is 63 feet broad. The whole method of cultivation is gone into, and the packing of the Roses for market described. The manner of dealing with pests comes in for very careful consideration, and Miss Dorrance urges upon Rose growers the need of imbuing themselves with the scientific spirit.

TEA ROSE TRIFLES.

According to Mr. Osmond G. Orpen, those who say that Tea Roses are not suited to a soil or situation have, in many cases, not given the matter a fair trial. This writer deals particularly with the stony ground in which his own plants are grown on the side of a hill, and points out certain advantages arising from the position as regards drainage and the ripening of the wood. He discusses also the advisability of choosing old meadow-land for a Rose plantation, and alludes to difficulties which may arise through not spreading out the roots of Rose-trees properly when they are being put into the ground.

Mr. Orpen also treats of "stocks," and says that upon no Roses is the effect of these upon the scion so great as in the varieties under consideration. He himself prefers "standard Briars," 2 to 3 feet high, though some varieties do better as dwarfs, and some are stronger on "Briar cuttings." "Briar seedlings" are not recommended, as they send up many suckers. Mr. Orpen advises the putting of hay in the centre of the heads as a protection against the effects of frost.

THE BEAUTIFUL USE OF ROSES IN GARDENS.

Miss JEKYLL, V.M.H., wrote a very brief paper, mentioning how old varieties were again coming into favour, and setting forth that her object was to "draw attention to the great importance of the new development of Rose growing in its relation to the newly arisen desire for the wider comprehension and interpretation of Rose beauty."

EVER-BLOOMING ROSES FOR GARDEN DECORATION.

Mr. WILLIAM PAUL points out that according to the botanists, Rosa indica and R. semperflorens both flower all the year round, and among the many varieties derived from these, the Riviera Roses according to some are their truest representatives. The same profusion of flowers which these produce could, Mr. Paul thinks, only be realised in England by bringing the "Riviera" soil and climate with the "Riviera" Roses, but their individual blossoms in the cooler and moister atmosphere of this country have a freshness and bewitching beauty which he has never seen abroad

Mr. Paul says that the Rose is worthy of a garden to itself, but taking this as conceded, he dwells upon varieties hardier than the "Original Tea-scented," which may be advantageously introduced into the system of miscellaneous bedding, especially where a separate Rose garden cannot be maintained. He is careful, however, to point out that these Roses will not bloom all the year round in this country out-of-doors, but they will do so if at the end of the Rose season they are removed to the warmth and shelter of glasshouses.

Hints as to planting, to protecting in winter with boughs of evergreen, and to removing early buds, so that the later blossoms are finer, are also given. It is further emphasised that thousands of Englishmen are only in residence at their country seats towards the end of summer, at a time when the Roses alluded to are at their fullest beauty

ANSWERS TO CORRESPONDENTS.

BOOKS: *T. E. R.* You might with advantage purchase *Sketch of the Evolution of our Native Fruits*, price 7s. 6d. By L. H. Bailey. (The Macmillan Co., St. Martin's Street, London, W.C.) This firm would likewise inform you of any special work published in the U.S.A. about Californian fruits. *Subtropical Cultivations and Climates*, by R. C. Haldane, published by W. Blackwood & Sons, London and Edinburgh, contains much useful information of the kind you require.

CELOSIAS: *W. T., Leeds.* You have omitted to furnish us with any particulars of the conditions under which the plants have been growing. Appearances suggest that they have been planted in the flower-beds out-of-doors, and have suffered from exposure to cold.

DISEASED GRAPES: *Jac.* 10, *A Gardener, J. C., and C. F.* The Grapes sent for our inspection are infected by the "spot" fungus, Glæosporium læticolor, often remarked upon in these columns, and as recently as our last issue. The disease seems to be spreading through the country, and doubtless the use of the syringe on the Vines, and the humid state of the vineries, generally afford conditions favourable to the growth of the fungus.

DISEASED PEAS: *The Islands.* The mildew is Peronospora viciæ. Spray the Peas and also the soil with a solution of potassium sulphide. Carefully collect and burn badly diseased portions to prevent recurrence of the disease next year. *G. M.*

DEFORMED SHOOT OF CONIFER: *H. K.* Caused by Chermes abietis, see p. 499, 1884, vol. xxii, New Series, and p. 373, 1893, vol. xiv., Series iii. When small trees are infested, petroleum emulsion is useful, but nothing can be done with large trees. Much infested trees, which cannot be cleared of the Chermes, should be felled in the summer whilst the galls are green, and the insects within them and the whole of the branches lopped off and burnt forthwith, or the plague will assuredly spread to neighbouring Conifers. Where the galls are not many on young trees, they should be carefully removed as soon as they are observed, being gathered into an apron in preference to a basket, as this leaves both hands at liberty.

FIGS: *M. & Co.* If the plants have become thoroughly established since they were potted in the spring, and they are required for forcing in the winter, the larger-sized Figs should be ripened off—only a light crop, and those of pin-head size allowed to remain. These should form the first crop of forced Figs. The plants should be rested when the first crop is taken by affording cooler conditions, lessening the quantity of water at the root, and giving full ventilation to the house, or standing the plants in the full sun out-of-doors. You ought to take two crops of fruit from the forced trees—the first which are now the smallest seen in the axils of the leaves, and another that will form at the base of the new growth.

GROWTH ON A LAWN: *E. J. W.* Not a fungus, but a lichen common on ill-drained lawns where the soil is poor. Except by crowding out the grass it does no harm. Rake it off, and apply a nitrogenous dressing, such as lawn-sand, to the lawn.

INSECTS ON LARCHES. *R. T.* Lachnus pinicolus, one of the largest of the British aphides. Its habit is to infest the base of the tufts of leaves of the Larch, but it also infests the Scotch Fir. We believe that these are the only food-plants of this aphis. It is just possible, however, that it may occur on other Conifers, but it is not likely to occur on any other kind of plant. If your trees are few in number, you might improve them by spraying in late autumn with paraffin, or potash emulsions.

JUDGING DESSERT TABLE WITH PLANTS, FLOWERS, AND FOLIAGE AS ADJUNCTS: *J. W.* We consider that the exhibitor who showed seven fruits when only six were required, and the other who included no plants, but flowers and foliage only, when all or these were called for by the schedule, should have been equally disqualified.

JUJUBE, ZIZYPHUS VULGARIS: *A. W.* Originally a native of Syria, this tree has become naturalised along the shores of the Mediterranean. It requires bright sunshine, and a considerable degree of heat. In France it only fruits in the extreme south, though it may be seen growing out-of-doors so far north as the 47°. The seed takes two years to germinate. Growth is slow, and a tree takes thirty years to reach full bearing. The plant may be met with in botanical gardens. We suppose that more certain results would accrue from artificial fertilisation. Perhaps some of our travelled correspondents will kindly say if this is so.

LILIUM GIGANTEUM: *W. H. S.* The plant is affected by the fungus which is causing so much loss among L. candidum everywhere—a Botrytis form of a species of Sclerotinia. There is no known cure, and it will be prudent to dig up the affected plants and burn them, and dig some quick-lime into the soil where they were planted, not planting any Lilies or allied plants on the same piece of land for some few years. The bulbs may be thickly coated with flowers-of-sulphur. The disease exists in the tissues of the plant, hence the impossibility of driving it out.

MELON ROOTS: *J. H. W.* We have not examined the roots microscopically, but we have no doubt they are affected with "eelworm," introduced with the potting soil. Turn out the soil and get fresh, baking it before use.

MUSHROOM AND STRAWBERRIES: *R. T. G.* The freak of one Mushroom fixed on the top of another is of common occurrence. The fruits were very fine, but were reduced almost to pulp.

NAMES OF PLANTS: *X. Y. Z.* Erigeron philadelphicus. — *Veritas.* Dendrobium transparens.—*G. H. S.* 1, Potentilla fruticosa; 2, Pernettya mucronata; 3, Glaucium luteum (Horn Poppy); 4, Agrostemma coronaria; 5, Kalmia angustifolia; 6, Tamarix gallica; 7, Mitraria coccinea.—*A. B.* 1, Campanula persicifolia alba; 2, C. persicifolia; 3, C. Portenschlagiana; 4, C. glomerata; 5, Alstrœmeria aurantiaca; 6, a hybrid Verbascum.—*C. B.* 1, Genista anglica, double-flowered; 2, Calycanthus floridus; 3, Dictamnus Fraxinella; 4, Cratægus coccinea; 5, Spirea ariæfolia; 6, Rhus Cotinus.—*T. C.* Lord Anson's Pea, Lathyrus magellanicus. — *L. A. T.* Epidendrum cochleatum.—*E. W. H.* We cannot name garden varieties of Coleus.—*J. P.* All forms of Athyrium filix-fœmina, the crested varieties are called A. f.-f. cristatum, corymbiflorum, &c. It is difficult to distinguish between them from single fronds.—*H. Y.* Dictamnus Fraxinella, the rose tinted, and Astrantia major.—*E. W. D.* Cattleya Gaskelliana and probably Pholidota pallida, both specimens much withered. —*C. H.* Lychnis chalcedonica the scarlet, and Agrostemma coronaria.—*T. T. H.* Cerastium vulgatum.—*S. P.* Diplacus glutinosus.

COMMUNICATIONS RECEIVED.—Mumm & Frerichs, Hamburg.—Messrs. Webb & Sons.—Messrs. Messenger & Co.—W. T., we do not sell our illustrations—N. S.—W. E. G.—H. W.—Canon E.—Sir T. L.—J. J. W.—D. R. W.—J. O'B.—A. R. R.—L. B., New York—A. H.—A. L.—J. H. V.—Sprenger, Naples, specimens mostly rotten—J. Vilbouchevitch, Paris—J. R. J.—A. P.—J. Vrengdenhill, Haarlem—W. P.—W.S., Coventry—R. M.—K. Dinter, German S.W. Africa—C. F.—W. P. R.—A. C. F.—S. A.—D. R.—E. T. B.—D. R. W.—R. J. A.—W. W.—E. C.—Attwood & Co.—R. G.—C. T. D.—W. M.—Bush & Co.—C. H. B.—H. E.—H. S.—Geo. Hansen, U.S.A.

(*For Markets and Weather, see p. x.*)

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CONCERNING GILLIFLOWERS.

HOW sad, so sweet a name as Gilliflower should have fallen almost into disuse! It lingers still in out-of-the-way places, where Stocks not infrequently are called "Jellyflowers," and Carnations too are subject to the same designation. The name, therefore, is not extinct, but at the same time it cannot be denied that the popularity it enjoyed during many centuries has waned almost to a setting. As a name, its descent from a Greek, thence from an Arabic source, has been traced with much apparent clearness; and also the early English form from the French Giroflée. But in passing it must be remarked that the "Clowe gelofré" of the *Romaunt of the Rose*, relied upon by not a few as an early example of the Gilliflower, may not, on account of its association with true spice-plants, be accepted as anything but a spice itself. In Chaucer's *Sir Thopas*, the association is of a less pronounced form, but deduction in this case points also to a like affinity. Another source almost as early as Chaucer, but which hitherto appears to have escaped observation, clearly points to a form of Dianthus caryophyllus, the word being used by James I. of Scotland—"Red Jerrifleris, with heir stalkis grene;" another spelling in the same poem being "Geraflourè." A century later "Jereflouris" again occurs, and for this word Ruddiman has derived an Italian origin.

It is not at all unlikely either that, as in some other instances, Gilliflower may have possessed a popular meaning. We know it was a lover's flower, employed sometimes as a token when worn on the person, and transmitted from one to the other of Cupid's victims, bearing some meaning long ago forgotten, but certainly a not unhappy one. What so likely, therefore, that the Jacks of those distant centuries should associate the flower with their comely Gills, and call it by their name? Moreover, it has been too generally assumed that the various names, e.g., Gilliflower, Clove-Gilliflower, Sops-in-Wine, and Carnation, indicate one only plant. That, however, is an erroneous assumption. The writer has already (vol. xxx., p. 405) endeavoured to mark the distinction between the Carnation and the Gilliflower, &c., of garden culture of the sixteenth and seventeenth centuries, and quoted early remarks to show they were distinct, the former being an older plant than generally supposed. Since then I have noted in "A Necessarie Table, &c.," affixed to *The Profitable Arte of Gardening*, ed. 1574, the chapter on "The Gilyfloure" entered as—"Of the Carnation and Gilyfloure," which, as well as being an early reference, is one that cannot be disputed.

Of the Gilliflower, as distinct from the Carnation, a single form seems to have been that most commonly cultivated. From one old writer, the petals in this kind appear to have been round, and they were small. By the name of "Red Gillyfloure" it is mentioned in the *English Huswive*, where directions may be found for producing with the petals a peculiar kind of "sallad." The Clove-Gillyfloure was a small double variety, at once remarkable for its penetrating aromatic perfume and the deep red colour of its flowers. Though in *Adam out of Eden* it is noted as a market plant, it is plain that, being up till 300 years ago propagated solely from cuttings, it could not be what we should call a common flower. It continued, however, till the time of Abercrombie an acceptable garden plant, but when Hogg wrote eighty years ago, it had been lost to cultivation; the "Old Clove" now cultivated, it is scarcely necessary to say, being in many respects distinct from the above sort.

It would seem to be the plant adopted by those who credit Chaucer with naming the Clove-Gilliflower, and by a curious elision in the text, say it was to "put in ale whether it be moist or stale!" I have sought very diligently, though altogether unsuccessfully, to find any mention of the flower having been used to flavour any liquor. The Gilliflower in some form appears in the old lists of plants down to that of Tusser, but it is never named as a useful flower. About the end of the 16th century it was discovered to be valuable in cases of depression, and apothecaries stocked it as a conserve and as a syrup. Evelyn's *Pomona* mentions as somewhat of a novelty Clove-July-flower wine, and this liqueur continued long in use. Common Cloves, on the other hand, were largely used for flavouring wine, distilling, and other purposes; and at the earlier dates these have almost certainly been confounded with the plant under notice.

Sops-in-Wine has constantly been identified as a synonym of the above, and not a distinct plant. This is the more strange because it is so often named in conjunction with the other forms. Spenser's is so well known—

"Gelloflowes, Coronations, and Sops-in-Wine,"

that other instances need not be quoted. In growth and habit the plant was much like the Pink; its very ragged blooms were also like that flower. They were single, and very sweet-scented. There is, however, no evidence to show that the flowers were ever used to flavour wine. Spenser says they were worn by paramours; and it is not improbable that the name had something to do with the marriage ceremony, perhaps prospectively; the consecrated wine and wafers partaken of in church at the conclusion of that sacrament being called Sops-in-Wine. The plant seems to have disappeared entirely early in the seventeenth century.

Of cultivated Gilliflowers it may be said that Parkinson names a large selection, of which the Clove-Gilliflower represents one section, and the yellow-ground Carnation the other. The flowers varied greatly in size, and many of the names used to indicate varieties are sufficiently quaint.

Next to Dianthus I think we may safely conclude that Stocks were the most popular of the Gilliflowers, and they have retained their popularity till the present day. Why Stocks and many other plants were numbered with Gilliflowers is hard of explanation. In this instance, the name is comparatively not an old one, neither is it in the case of a large number of cruciferous plants and others which received the name about the same time. The earliest Stocks we have knowledge of were all single-flowered, the first double variety so far as known, having been brought hither by Tradescant, when he returned from the continent in 1611 There were two plants, one of which cost 2*s.*, the other 3*s.*, and these seem to have been a double form of Matthiola incana. Previously to being called Gilliflowers, they were "Violets," and the above species was "Viola alba," the white Violet, white Gilliflower, and white Stock-Gilliflower. The distinctive appellation applies to the whitish appearance of this Matthiola, and not to the flowers which were of various colours. "Stock" seems to be a form of stalk of a woody nature. As in addition to "Cabbage-stalk," we have "Stocks and Stones," "Stocks of trees," &c. Another of its names "Castle Gilliflower," was very probably bestowed because along with the Wallflower it existed on "Stonehilled" houses. M. annua, or "Small-stock Gilliflower" was another early plant. Gerarde runs wild among Stock-Gilliflowers; and Parkinson, more sober, has little new to add beyond a striped double form, and the "Sullen Stocke Gilloflower" or "Melancholick gentleman." This is Hesperis tristris, now not commonly cultivated, and apt to die out in dry soils. Improved forms of Matthiola incana appear in Philip Miller's time as Queen's Stock Gilliflowers, though a writer in 1843 refers these to Ten-week Stocks. The Brompton-Stock Gilliflower, now called Brompton Stocks, is also mentioned by Miller, but only a crimson form, to be later enriched by other colours, was known. A much be-praised sort called Twickenham Purple was next secured, and of this quite a variety was cultivated in 1807. The Ten-week Stock did not appear as such till about one hundred and seventy years ago.

The Malcolmias, of which the Virginian Stock and the Sea Stocks are representatives, were at first called Gilliflowers.

As the Stock was originally called the White Violet, so the Wallflower was known by botanists as the Yellow Violet, Viola lutea. It also was admitted as a Gilliflower, the Yellow, the Wall, the Winter, and the Yellow Stock Gilliflower. The more common names, however, were simply Wall-flowers and Harts-ease. Some writers, it may be noted, have mistaken the identity of certain improved varieties of this plant, to which the names respectively of Bleeding Warrior, Bloody Warrior, and Bloody Wallflower, were applied, assuming these designations to indicate the common sort. The last name is that of a fine double form that appeared about two hundred and twenty years ago. Laurence in 1726 refers the two former to a fine single garden form, striped with blood-red. Several plants were known as Queen's Gilliflowers; that generally accepted as such being Hesperis matronalis. Lawson, however, called Carnations by that name; Parkinson, too, indicates such a variety; and, as just noted, a Stock also was thus designated. The Hesperis in the sixteenth century was, moreover, named "Rogues" and "English" Gilliflowers. Another name, Dame's Gilliflower, is uncommon; though "Dame's Violet" is not at all so. By a pecular perversion, "Dames," which as printed was an orthographic variation of "Damask," gave rise to the latter name which has been long current.

I have found Lychnis vespertina and L. dioica referred to as "wild Gillofers," but only once, and the reference points to a way of doubling the flowers of plants lifted from the fields into gardens. The reason why the "Ragged Robin" (March Gilliflower) should have been called "Cuckoo Gilliflower," carries us back to a time when "Cuckoo" was an opprobrious epithet, bearing no reference to the bird of that name, but rather to a class of persons often mentioned in old English literature. Another English plant, the common Soapwort, because it bore a general resemblance to the Dianthus family, was called the "Mock" Gilliflower.

There are yet two plants, Tagetes erecta and T. patula, which at first were adopted into the large and comprehensive family of Gilliflowers; and than these, no two plants had perhaps greater difficulty in settling down into their proper places. For a long time, moreover, they were inextricably confused the one with the other, but it is impossible to enter fully into their queer early history here. Why they came to be called Gilliflowers at all arose from the French entertaining the opinion that the French Marigold was a kind of Carnation brought from the East. Hence, we have the "Indian" and "Turkie" Gilliflowers. The African was supposed to have been brought from Tunis into Austria. They were at first received into gardens with much caution, as the plants were supposed to be identical with a noxious vegetable mentioned by Pliny, but by, and even previous to the middle of the seventeenth century, both species were cultivated in several varieties, both single and double.

It may be added that Heliophila pilosa and H. coronopifolia also are African Gilliflowers; and we have a water Gilliflower, Hottonia palustris. *R. P. Brotherston.*

ZYGONISIA × ROLFEANA.

OUR illustration (fig. 11) represents the pretty bigeneric hybrid between Zygopetalum maxillare Gautieri and Aganisia lepida, shown for the first time by Messrs. Sander & Sons, of St. Albans, at the Holland House Show of the Royal Horticultural Society, when it secured an Award of Merit. At the meeting at the Drill Hall, July 8, a still better variety was shown by Messrs. Sander, and from which our illustration was prepared.

It will be seen that the new hybrid has the general appearance of Aganisia lepida, but it is much more robust than that species, and has showier flowers, which in some respects resemble those of Zygocolax ×.

Zygonisia Rolfeana is of elegant habit, and apparently very free-growing; its flowers cream-white, blotched with violet colour.

FIG. 11.—ZYGONISIA × ROLFEANA.

NEW OR NOTEWORTHY PLANTS.

IRIS KÆMPFERI "QUEEN ALEXANDRA."

RECENTLY I noticed a very fine new Iris opening in my Iris garden; it thrives wonderfully, growing in the water, and moving its fine flowers in the morning wind. There are very many varieties of Iris Kæmpferi, or, if you prefer the name, Iris lævigata, in European gardens; but it seems to me that this new and beautifully-coloured variety is the best of all, if not the largest.

Leaves numerous, very thin, quite ensiform, lax, recurved, not erect, pale green. The rigid stems much overtop these leaves, and have several reduced leaves, and sessile clusters of very large flowers. Spathe two or three-flowered. Three are 9 inches long, glaucous, with browned tops. Limb 4 inches long, and 3 inches broad, snow-white, with a yellow keel, and faint pale yellow veins on the falls; its falls are also very fine and delicately tinged with azure; standards very much shorter, oblanceolate-unguiculate, and veined with azure; style branches waxy-white.

Generally I do not like the Iris Kæmpferi varieties with falls and standards widely dissimilar; both must be alike, so that the latter are as long and as wide as the former; but with this splendid variety it is necesary to make an exception.

Iris Queen Alexandra will certainly shortly become a favourite in the Iris or water-garden, as it is one of the most showy flowers, not only amongst the Irises, but in all the wide flower kingdom. My Iris Kæmpferi are left quite without water from October till March. I cultivate them all in large pots, never in the open ground. They are divided in March, when they begin to show leaves, planted in a mixture of peat, loam, and sand, and placed in cement basins on about a ¼ inch of pure water. If they thrive, we give little by little more water, till the pots stand quite under water; then we give much manure—the best is that of sheep and goats, but also, as the Japanese do, we use ordinary sewage, and sometimes a little saltpetre. So treated, these Irises grow luxuriantly, and with me flowers from May to July richly and abundantly. These Irises have no fragrance, but for all reasons I rank them next to Orchids. *Ch. Sprenger, Naples.*

HYMENOCALLIS CONCINNA.

Under this name I recently received from Messrs. Dammann, of Naples, bulbs of a species of Hymenocallis, of which I now send you a description below. The Mexican Hymenocallids form a section of the genus well worthy, from a botanical point of view, of more extended study than they have as yet received.

This section is not of much horticultural merit, most of the species carrying only a few flowers, and they are small and not particularly pleasing. It is doubtless due to this fact, that they have been so overlooked by authors. Yet from their comparative hardiness several of them are worth a place in our gardens, and to the hybridist they offer the only chance of producing a hardier race of garden Hymenocallids. Among these Mexican species it has been observed that the flower scape is often nearly circular in section, instead of being "compressed" (or two-edged), and that the foliage is scanty, almost erect (at least when growing), glaucous, and destitute of any stem.

Mr. Baker gave the name "H. concinna," *vide* Baker in *Gardeners' Chronicle*, August 5, 1893. A plant is also mentioned by this name in Mr. Nicholson's *Dictionary of Gardening* (Appendix), as being evergreen, and having proved hardy at Naples.

Description.—Leaves, two pairs of very glaucous leaves, destitute of any stem, or of any cross-venation produced simultaneously with the (central) flower-scape—these are nearly erect, and about 1 foot long, by 1½ inch maximum width. Scape, 1 foot high, scarcely at all compressed, bearing two flowers, opening in succession at an interval of a few days. Spathe-valves, erect, not sheathing at the base. Flowers resembling closely those of H. Harrisiana (*Bot. Mag.*, 6562), but shorter in the tube, very stellate, fragrant, 4½ ins. in diameter. Tube, 2 inches long. Cup, ½ inch high, by ¾ inch span, irregularly one-toothed between each stamen, widely expanded. Segments, 2½ inches long, by nearly three-sixteenths inch maximum width. Free ends of stamens 1½ inch long. Anthers, ¾ inch long at maturity. Pollen, orange-coloured. Style, shorter than the stamens. Stigma large, simply-capitate. Ovules, a pair in each cell, basal.

Fruit.—Ripening in less than a month, and dehiscing before ripe.

Seeds.—Four to the fruit, nearly round, and indistinguishable from those of Ismene calathina, except in their smaller size, and in the minute, obscure white spots covering them. In I. calathina it takes about ten seeds to weigh an ounce, whereas in concinna twenty-six are required.

Note.—Germination not yet tested. The period of gestation and the moment of dehiscence correspond exactly with Ismene calathina. H. concinna seeds freely, each flower becoming self-fertilised at the moment of expansion.

The plant, from which this description is taken, is now in flower in my garden. The

nearest ally is evidently H. Harrisiana (*Bot. Mag.*, 6562), but it is very interesting to compare the plant figured by Redouté (*Red. Liliacées*, 155) as Pancratium disciforme, which differs only in the larger flowers and longer style. Herbert's genus, "Choretis," also furnishes some plants in tolerably close alliance. *A. Worsley, June* 13, 1902.

BOOK NOTICE.

DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDEES.

THE June issue of M. Alfred Cogniaux's illustrations and descriptions of Orchids, completing the fifth series, com nences two genera, viz , Galeandra and Rhyncostylis, and gives additional pictures to the already issued genera, together with some hybrids.

CYPRIPEDIUM × RHODOPSIS.—An interesting hybrid raised by Reginald Young, Esq., between C. Charlesworthi and C. × enfieldense (Lawrenceanum × Hookeræ). Flowers of a brownish hue, the upper part of the sepal white, the middle area and staminode purple.

CYPRIPEDIUM × GERMINYANUM (VILLOSUM × HIRSUTISSIMUM).—A well-known hybrid, described by Prof. Reichenbach in the *Gardeners' Chronicle*, vol. xxv, p. 200 (1886).

CYPRIPEDIUM × EUCHARIS VAR. FOURNIERIANUM (INSIGNE MAULEI × LAWRENCEANUM).—Upper sepal green at the base, white above, densely spotted with purple. Lip and petals rose-purple, the petals having some chocolate spots.

GALEANDRA BEYRICHII *Rchb. f.*—A South American species with green flowers, the lip margined with white. Syn. G. viridis.

LÆLIA PRÆSTANS AUREA. — The figure represents typical Lælia pumila with more than usual yellow in the tube of the labellum.

LÆLIA HARPOPHYLLA, *Rchb. f.* — Flowers orange colour. First flowered in the collection of the late Mr. Day, of Tottenham, in 1857.

LÆLIO-CATTLEYA × GLALYS, *Cogn.* (C. HARRISONIANA VIOLACEA × L. CINNABARINA).—Habit of L.-C. × intermedio-flava. Sepals and petals white tinged with rose; lip crimped, pale yellow.

LÆLIO-CATTLEYA × DOBIS VAR. "MARQUIS DE COLBERT" (L. HARPOPHYLLA × C. TRIANÆI).—Sepals and petals dark yellow; lip ruby-red with yellow disc. The original form was raised by N. C. Cookson, Esq.

LÆLIO-CATTLEYA × MME. MARGUERITE FOURNIER (L. DIGBYANA × C. LABIATA).—Flowers closely resembling those of other crosses of the same class. White tinged with rose, the darkest colour being on the fringed edge of the lip.

ODONTOGLOSSUM TRIPUDIANS, *Rchb. f.*—Sepals and petals yellow heavily marked with brown; lip white with purple markings. New Grenada.

PHALÆNOPSIS × LEUCORHODA, *Rchb. f.*—A natural hybrid of P. Aphrodite and P. Schilleriana. Flowers white tinged with rose. Philippines.

RHYNCOSTYLIS RETUSA, *Bl.*—A widely distributed species, generally known as Saccolabium guttatum in gardens. Racemes densely set with white flowers spotted rose.

SOPHRO-CATTLEYA × NYDIA (S. GRANDIFLORA COCCINEA × C. × CALUMMATA).—A fine hybrid, with reddish-crimson flowers, raised by Messrs. Charlesworth & Co., Bradford.

DR. UVEDALE AND THE ENFIELD CEDAR.

AN interesting relic of the most famous of the Headmasters of the Enfield Grammar School, Dr. Uvedale, has been very romantically recovered, and is now in the possession of the school. Mr. Carl Crouch was purchasing some old books and pamphlets on a Farringdon Street bookstall, when he came upon a fragment of an old Hebrew Bible, with a list of names on the flyleaf. On examination, this proved to be a portion of the family Bible of Dr. Robert Uvedale, the famous botanist, who was Headmaster of the Enfield Grammar School from 1664 to 1696, and the list of names was the record of the births of his eleven children, written in Latin. Dr. Robert Uvedale, the well-known horticulturist and botanist, was born in the parish of St. Margaret's, Westminster, on May 25, 1642, and was the son of Robert Uvedale, of Westminster, a member of the branch of the Uvedales of Dorsetshire. In 1664 he became Headmaster of the Enfield Grammar School, and took the Manor House, called Queen Elizabeth's Palace, where he resided with his boarders. It is recorded that at the time of the Great Plague he kept his pupils in good health by taking them for a walk over Winchmore Hill every morning before breakfast, and on their return causing them to hold their heads over the fumes of boiling vinegar. While at Enfield Dr. Uvedale made a collection of rare plants in his garden, which, after his death, were sold to Sir Robert Walpole, and removed to Houghton, with the exception of the well-known Cedar-tree, that all Enfield can view at the back of the present post-office (fig. 12). This Cedar was brought to Dr. Uvedale by two of his old pupils who had made a journey to Palestine, and was the first Cedar of Lebanon introduced into this country. *Dr. Uvedale's Herbarium*, in 14 volumes, forms volumes 302-315 of the Sloane Collection in the British Museum. In 1696 Dr. Uvedale was made Rector of Orpington, with the Chapelry of St. Mary Cray, Kent. Dr. Uvedale died in Enfield on August 17, 1722, and was buried there. *Enfield Chronicle.*

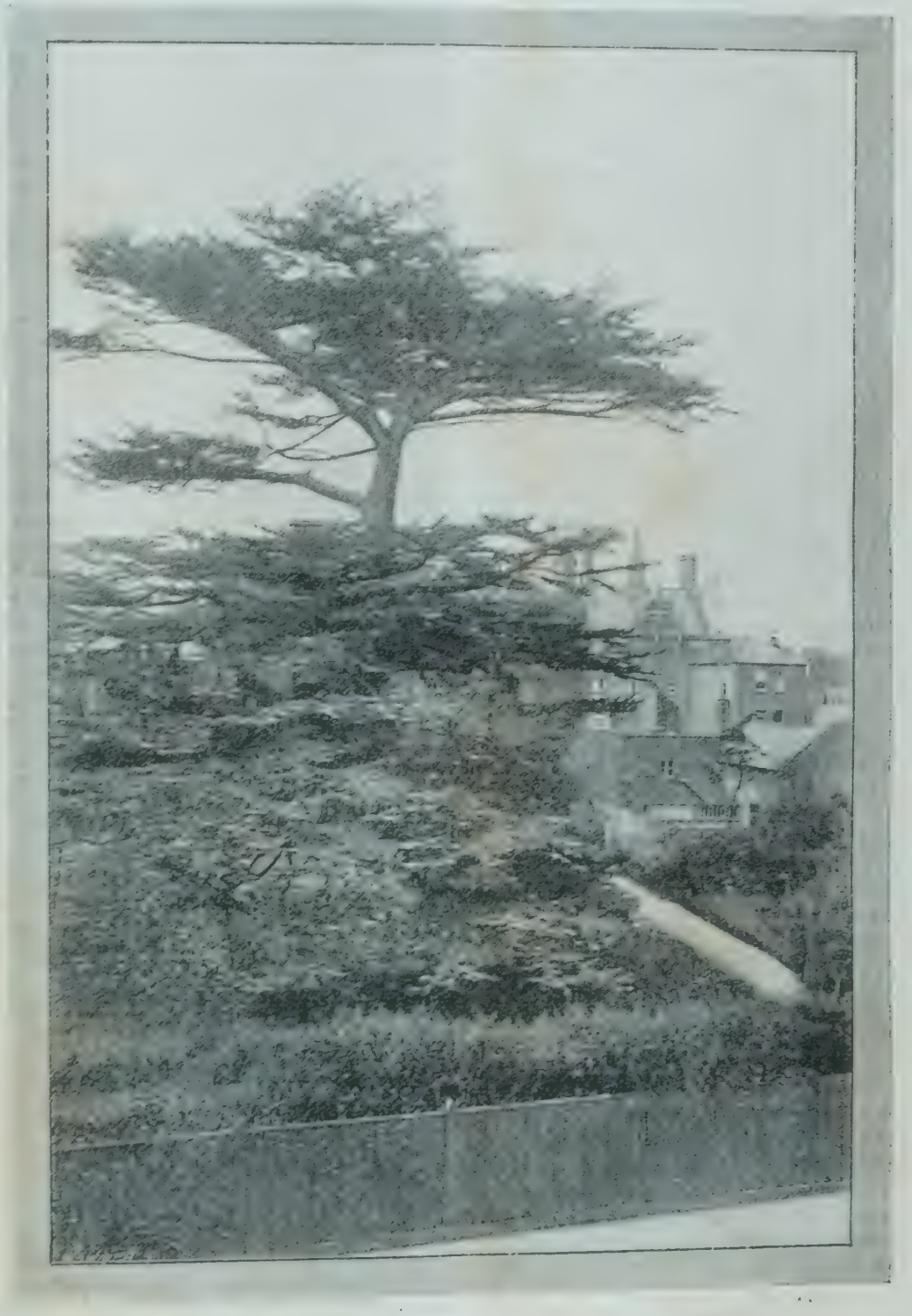

FIG. 12.—THE ENFIELD CEDAR, A RELIC OF DR. UVEDALE.

NOTES FROM THE SOUTH-WEST.

RHODODENDRONS.—Lovers of Rhododendrons may spend an interesting and enjoyable spring in Southern Cornwall, for in that district the finest specimens of all the handsomest species and hybrids are to be found. During the past spring I have seen many of these in the zenith of their beauty. Anyone desirous of becoming acquainted with the different species and varieties in flower would, however, have to make a somewhat lengthened stay in the neighbourhood, since R. Nobleanum × often commences to expand its blooms as early as November, and others are not at their best until the end of May or beginning of June. In one garden R. argenteum flowers in January, but the finest specimen I know of, 16 feet in height, and about 20 feet through, was at its best at Tregothnan at the end of March, when it was bearing considerably over 300 bloom-trusses. Hard by stands what is probably the largest R. Falconeri in the country, which, when I visited the gardens early in May,

was in full flower. This specimen was measured in my presence, and proved to be 22 feet in height, and 30 feet through. It is a very symmetrical example, and is covered with its giant leaves to the ground-level; it was bearing over 1000 flower-trusses. At Tremough there are two large specimens of R. Falconeri which were masses of flower at the same date. Mid-April is the season when these gardens are at their brightest, for then the great R. arboreum hybrids, illustrations of which have appeared in these columns, are at their best. A fine R. Griffithianum (Aucklandi), over 10 feet in height, was flowering grandly at Tremough early in May, but I saw a far larger one a few days later near Truro; this was 12 feet in height, and 22 feet through, and was literally white with blossoms, one of which that I measured was 5 inches in diameter, and some of the trusses held nine blooms. This R. Griffithianum was procured as a small plant in 1864; it is a very handsome form, the white flowers having a small blotch of carmine at the base of the cup. Other varieties are pure white, and in one garden I saw a rose-coloured form. R. fragrantissimum, 9 feet in height, was in flower, as were Lady Alice Fitzwilliam and Countess of Haddington; and two fine examples of R. campylocarpum, 6 feet and 8 feet in height respectively, were covered with their yellow blossoms. I have seen R. Dalhousiæ in flower in the first week in June, R. Nuttalli, growing against a wall had fine flower-buds in May, but I have never yet met with this in flower in the open. R. Roylei Blandfordianum, with its small soft pink flowers of great substance, is a pretty kind not infrequently met with.

MISCELLANEOUS PLANTS.—In a tour amongst the gardens of southern Cornwall, the flower-lover is surprised, if he comes from the midland or northern counties, at the large number of greenhouse subjects permanently established in the open. In one garden I saw for the first time the Silver Tree (Leucadendron argenteum), of Table Mountain. The plant was about 5 feet high, and had come through the winter unprotected in an open bed. Hard by were plants of Boronia megastigma in full flower. I know of other specimens of this Boronia doing well in the open with wall protection in Cornwall, but there was no wall within fifty yards of these. In another portion of the garden was a good plant of Acacia cultriformis, a flowering spray of which lately received an Award of Merit from the R. H. S.; and upon the southern wall of the house were trained Tacsonia mollissima bearing fruit, T. Van Volxemi, Bougainvillea speciosa, Cobœa scandens, unhurt by winter; Cassia corymbosa, and Ivy-leaved Pelargonium Mme. Crousse. Acacia affinis had attained a height of 40 feet, and many immense plants of Woodwardia radicans were growing in sheltered nooks, some of the fronds of which I was informed reached a length of 10 feet when at their best. Mandevilla suaveolens, and Trachelospermum jasminoides are comparatively common wall-plants in Cornwall, the porch of one house being wreathed with the latter which in the autumn is a mass of fragrant white flowers. Plumbago capensis, Kennedyas, Sollya heterophylla, Pueraria Thunbergiana, Hibbertias, Iuga pulcherrima, Chorizemas, and many other tender subjects make good growth and flower well against the open walls. Tibouchina macrantha (Pleroma), though generally dying down in the winter, breaks again strongly in the spring. Maurandya, in sheltered positions, comes through the winter without loss of foliage, and on one house Streptosolen Jamesoni is grown on a south wall. The number of rare and tender shrubs to be met with in the open in various gardens is astonishing.

To mention all would fill many columns, but a few of those especially interesting may be noted. Buddleia Colvillei is by no means uncommon, one example being 7 feet in height. Fine bushes of Illicium religiosum were in full flower early in May, as was I. floridanum, with its maroon-hued blossoms. Anopterus glandulosa bears its panicles of ivory-white, drooping bell-flowers in April; and in the summer, Clethra arborea well merits the name of Lily of the Valley tree, often applied to the better known Andromedas. Citrus trifoliata flowers well in south-western gardens, and in some perfects numbers of fruits; Correas flower excellently if planted near a south wall, C. cardinalis and C. ventricosa being especially brilliant; Drimys Winteri is handsome when holding its perfumed cream-white blossoms, and the small-flowered D. aromatica also does well. Grevillea robusta forms a spreading bush covered in the spring with bright rose flowers, and G. alpina and G. Priestii are also grown. Leptospermum scoparium assumes tree-like proportions, the specimen at Penjerrick being fully 30 feet in height; it is a beautiful sight when covered with its tiny white flowers. Arabia quinquefolia forms a handsome foliaged plant; as does Daphniphyllum glaucescens, which in one garden exceeds 12 feet in height; and some of the newer Senecios are ornamental. The Nepalese Cotoneaster frigida, though growing to a height of 15 feet and flowering freely, has not fruited in the two cases which came under my notice. The Bottle-brush trees, Callistemon salignus, red and yellow flowered, and the scarlet C. speciosus, which in nurserymen's catalogues appear under the name of Metrosideros, are to be seen in many gardens; and Edwardsia (Sophora) grandiflora and E. microphylla are by no means uncommon. Here and there are specimens of the Gnaio (Myoporum lætum), with its leaves covered with innumerable transparent spots; and Fagus cliffortioides, and Hoheria populnea, are also represented. Many species of Pittosporum are grown, one of the finest specimens being a bushy example 30 ft. in height at Tregothnan. There are three vigorous plants of Cordyline indivisa (true) at Enys, and C. Banksii is established in many places. The New Zealand Forget-me-Not (Myosotidium nobile), from Chatham Island, is quite at home in Cornwall, and bears its great blue flower-trusses in profusion. In one garden, Pourettia (Puya) mexicana was displaying leaves of the rightful bright crimson hue, but in many instances the foliage shows no sign of this attractive colouring. *S. W. F.*

ORCHID NOTES AND GLEANINGS.

ODONTOGLOSSUM CRISPUM FROM FORGANDENNY.

A BOX full of grand single flowers of Odontoglossum crispum, each measuring about 4 ins. across, and each taken from a different plant, is kindly sent by Mr. William Sharp, gr. to C. L. Wood, Esq., Freeland, Forgandenny, N.B., accompanied by the following interesting remarks:—

"I send sample flowers of our Odontoglossum crispum, which I think you will say are large enough. The fact is, that the stronger the plants are grown, the larger are the flowers; but I am inclined to think that after a certain point is reached, the increase in size is at the expense of the shape of the flower. I have found that when a plant was small, and bore but a few flowers on a spike, the shape has been perfect; but that when the same plant has been grown strongly for a few years, although the flowers have been much larger, the extra length of the petal has not been accompanied by proportionate breadth. The Odontoglossums grow very satisfactorily. Our largest 'crispum' has ten spikes; others have from eight downward. The plant from which the largest bloom sent was cut had fifteen blooms on a spike. The greatest number of spikes I have had on one specimen is thirteen. The largest number of blooms I ever had on a 'crispum' was sixty-four; on a Pescatorei one hundred and thirty-six."

Grown in such a manner and producing such uniformly lovely flowers, it is easy to understand why the species is such a favourite. It is remarkable, the very fine size and quality of the flowers received from Scotland. Can it be that Odontoglossums thrive better in some districts than in others? Perhaps some of our correspondents can enlighten us on the subject.

IMPERFECT FLOWER OF CATTLEYA MENDELI.

From Sir Trevor Lawrence we have received a flower of Cattleya Mendeli showing the parts of the flower arranged in pairs crosswise thus:—

P
S A S
P

There is thus a deficiency of one sepal and one petal (the lip). This dimerous condition is a very common malformation in Orchids, and in this case the circumstance is rendered the more noteworthy as, for three years in succession, the plant has produced flowers of this character.

VANDA BRUNNEA.

A fine inflorescence of this elegant and rare species is kindly forwarded by R. G. Fletcher, Esq., Mount Harry, Withdean, Brighton. The species has flowers in some respects resembling those of V. Bensoni, but with all the parts narrower, and especially the bifurcate labellum. The reverse side of the flower is whitish tinged with brown; the face of the sepals and petals being netted and tinged with brown. The base of the lip and spur are whitish, the middle portion purple, and the expanded deeply-cleft blade brown. The column is purple, and the apex white. The inflorescence is over a foot in length, and bears ten flowers attractively displayed on pedicels from 1½ to 2 inches in length.

CYPRIPEDIUM CILIOLARE MITEAUANUM.

A fine flower of a rather darker form of this beautiful variety of C. ciliolare is sent by Frau Ida Brandt, Villa Brandt, Riesbach, Zurich, who calls attention to its distinctive peculiarities, which are the same as those which appeared so remarkable in the original form that the plate in *Lindenia*, iv., p. 7, is simply lettered C. Miteauanum, though the description makes it a variety of C. ciliolare. The general appearance of the flower approaches that of C. Curtisii much nearer than in other C. ciliolare, and singularly enough it was purchased by Mrs. Brandt when not in flower as C. Curtisii. The upper sepal is rose-tinted, with a white margin, and many dark purple lines; the ciliate petals are tinged with rose, and spotted with purplish-chocolate on the inner halves. The labellum is brownish-rose, with glandular reddish spots on the interior and the side lobes. The broader proportions and spotting are the distinguishing features.

This group of Cypripedium, viz., Curtisii, ciliolare, and superbiens, has caused some controversy by reason of the variability of its members, or rather by the production among the two former of an occasional widely distinct variety.

The late M. Alfred Bleu asserted that by crossing C. ciliolare and C. superbiens he had obtained C. Curtisii, and therefore concluded that the last-named was a natural hybrid. Differences of habitat were against that theory, and C. Curtisii having a much shorter flower-stalk, it was scarcely likely to result from crossing two which have taller and generally more slender stems; therefore probably a mistake was made, and an imported plant got the hybrid's label. If any could be selected as intermediate, it would be C. ciliolare; and in the case of the one now remarked on, it has assumed more of C. Curtisii features than usual.

ALDERBROOK, CRANLEIGH.

The fine estate of Pandeli Ralli, Esq., in the county of Surrey, gives a delightful example of the happy blending of existing natural beauty of scene and vegetation, with modern gardening, and garden plants and shrubs. The extensive pleasure grounds are studded with Oaks, and here and there are small coppices retained in all their natural beauty of mossy, Fern-clad undergrowth, relieved by clumps of wild flowers, commencing with the Primroses in spring, and continuing until now, when the Foxglove makes the principal display. Shady walks run from one pretty garden nook to another, and in places ornamental water is planted with Water-Lilies of various colours now in bloom. The banks of the ornamental ponds are clothed with Irises and other waterside plants, and all are connected by a small flow of water from the higher ground, the lowest pond being the largest and most rustic, its seclusion making it a congenial resort of herons. Even close up to the fine dwelling-house, situated on a hill, the bracken which has for ages grown in large patches all over the district has been left undisturbed, but the beauty of the scenery has been enhanced by planting large numbers of bulbs—Narcissi, Snowdrops, Tulips, and other showy things which each in its turn makes its show, and is left undisturbed to gain strength for the display of increased beauty in the following year.

Rhododendrons have been largely planted in the natural woods and in the more formally kept garden near the house, and bordering the walks; and probably owing to the quantity of rain in the early part of the summer they have made a very fine show, and were in great beauty at the time of my visit. The only geometrically formed flower-beds are a few on the terrace on one side of the house, the other side looking out on a very pleasant garden bounded by tall shrubs and planted with rare Conifers, many of which have attained stately proportions. At the entrance of this charming part of the garden a fine effect is made by training Rose Rêve d'Or and Crimson Rambler into pillars 9 or 10 feet in height, and which are now covered with the mingled crimson and soft yellow flowers of the Roses. At another angle of the house is the Rose garden, beautiful with its showy and fragrant flowers, and along the winding walks pretty alpine and herbaceous plants appear, backed by bracken and indigenous plants.

The carriage-drive nearing the house having to be cut through high ground, a bank was formed, and that planted with the common Hypericum, or St. John's Wort, which gives one of the most effective objects in the garden, the beauty of its foliage, and the bright yellow of its flowers, rendering it the best plant possible for such a position.

The Lily walk has a good show of Lilium Hansoni, L. Swovitzianum, varieties of L. umbellatum, L. pardalinum, L. candidum, L. auratum, L. speciosum varieties, and others, among which are a few L. Washingtonianum, and one L. giganteum; and at many points pretty floral displays are arranged.

The Plant Houses, though near to the house, are effectively screened from it by tall trees. They are mostly of recent construction, and are well adapted in most cases for the culture of the showy flowers which are chiefly wanted for decorative purposes, and for cut flowers. Several houses are filled with Carnations, from the later batches just expanding their blooms, to the larger and less tidy-looking, but at present more useful earlier batches, still furnished with a profusion of flowers. Malmaisons are largely grown, and with fair success, though with the usual anxieties pertaining to their culture, for here, as at most other places, and from some cause which has never yet been satisfactorily explained, here and there one when apparently up to that point in excellent health, will collapse.

In one of the ranges is a showy lot of flowering Cannas and Tea Roses. In another house are Begonias, Pelargoniums, and other flowers. A batch of Achimenes in one place is effective, and the Orchid-houses have an improving selection, chiefly required for cut flowers, and among which in bloom are some good Cattleya Mendeli, C. Warneri, and other Cattleyas. Lælia purpurata, Sobralia macrantha, and its white variety; various Cypripediums, Disas, Oncidiums, &c. The Calanthes for winter flowering are in fine health and vigour, and the occupants of the Odontoglossum-house sound and healthy, though at present few are in bloom.

The fruit-ranges have good crops of Peaches, Black Hamburgh, Muscat, and other Grapes; and the broad border beside the walk fronting the houses is showy with herbaceous plant-flowers, a Rose screen having been arranged at the back by Mr. G. Walford, the clever gardener at Alderbrook, and which divides it from the kitchen garden beyond.

THE NATURAL HISTORY OF CONIFERS.

(*Continued from p.* 14.)

PASSING on now to consider the cultivation of Coniferæ in our gardens, I think it might prove of some utility if I gave a few of my own experiences in this subject. At the horticultural establishment of Mr. A. M. C. Jongkindt Coninck* at Dedemsvaart, near Zwolle, in Holland, at which I once had the good fortune to work, Coniferæ were cultivated on a considerable scale, and formed one of the main features of the place.

GRAFTING.

During the autumn and winter months, especially the latter, when King Frost reigned outside, and prohibited all work there, the grafting of these plants took place. All the varieties of Cupressus Lawsoniana, the Retinosporas, and Thuiopsis borealis, were grafted on one year's seedlings of the type form of C. Lawsoniana; although sometimes two-year-old plants were used. The seeds of the former had been sown in cold frames in May of the preceding year, and protected in some measure from the frost of winter by strewing their beds with Pine-needles. A strip about ½-inch long, was cut off the semi-herbaceous stem of the stock, leaving a basal ledge on which to support the scion of the variety, which had been cut in a similiar way; the latter was then tied tightly on with thin strips of bast. This method of grafting can be performed very rapidly, so that some thousands of plants can be propagated each season. In the same way the various species and varieties of Thuya were grafted on seedlings, usually two years old, of T. occidentalis; the various Junipers, on Juniperus virginiana; and the varieties of Yew on the type form of Taxus baccata.

A somewhat different method was adopted in the case of the Silver Firs and Spruces. In these a slit was made in the two-year-old stem of the stock, into which a wedge-shaped twig of the scion, with on one side a long, and on the other a shorter cut was inserted. But occasionally the entire head of the stock was severed, and on the obliquely-cut end of the stem, the similarly shaped end surface of the scion was applied. In this way the various kinds of Silver Fir were grafted on Abies pectinata, and the various kinds of Spruce on Picea excelsa. When grafted, the plants were placed in hot frames, where they remained until the grafts had taken, when they were transferred, if I remember rightly, to cold frames. In June, the portion of the stock-plant above the place of insertion of the graft was cut closely and cleanly away, and the young plants then set out in rows in the open ground. All this, however, refers only to the plants grafted on two-year-old stocks; those inserted on one-year-old stocks were retained in the shelter of the frame until the summer of the succeeding year.

CUTTINGS, &c.

Several species of Coniferæ were also raised from cuttings occasionally, such as Thuiopsis dolabrata, T. borealis, and species of Retinospora, as R. plumosa, R. filifera, and R. squarrosa. The bed was composed of a layer of soil, overtopped by a layer of sharp sand, made up under glass in the stove. In the spring, when the slips were rooted, they were set four or five together round the edge of a pot, and placed in a cold frame.

Although it was not grown in the establishment at Dedemsvaart, I may recall the method of propagation, observed elsewhere, of Araucaria excelsa, so largely used for table decoration in England. The tops of fair-sized plants in pots are cut off just below a branching node, and each is inserted as a cutting in a small pot, the soil of which consists largely of sand; they are then placed under glass in the stove, when rooting from the node is readily induced. In this way great numbers of neat and attractive-looking young pot-plants can be produced.

Seeds of Araucaria imbricata used to be sown in warm frames in the autumn; they germinated about the end of March, and with difficulty. If I recollect aright, the seeds were not buried, but lay on the surface of the soil in the pot. The seedlings had to be assisted in freeing themselves from the seed.

During the course of the summer, great attention was paid to the pruning of the young Coniferæ growing in the nursery. The dead twigs were removed, and if more than one leader appeared, the superfluous ones were cut out; a general thinning out of too densely-crowded branches was seen to, and a short length of stem preserved between the lowermost branches and the ground, the whole with the idea of conserving as far as possible the natural pyramidal shape and contour of the shrub.

A great feature of the establishment was the supply, chiefly to Stockholm, for the purpose, I believe, of church decoration, of great quantities of evergreen material, which consisted almost entirely of twigs of the type-form of Cupressus Lawsoniana, adult specimens of which covered considerable areas of the nursery, and were devoted to this purpose alone. The large boxfuls of this material

* Now a limited Company, of which Mr. A. M. C. Van der Elst is the Director.

which were shipped along the canal just outside the nursery boundary constituted a very considerable portion of the export products of the place.

It is pleasing to look back and note the evident success with which Coniferæ of many kinds were cultivated in Mr. Coninck's "Tottenham" Nurseries. Perhaps the innumerable varieties of Cupressus Lawsoniana and Retinospora there grown afforded the most striking feature. Two or three excellent new varieties had been raised by the proprietor himself, the most noteworthy of these being C. L. robusta, remarkable, as the name implies, for its hardiness and power of withstanding the severe frosts which prevailed there in the winter months, as also for its vigorous, shapely habit, and the glaucous-green tint of its foliage.

Not the least interesting feature of this great department was a model garden, in which all the species and varieties of Coniferæ cultivated in the nursery, besides several others, found a place, and in general characters were as well represented as possible. Some of us became possessed of the fad of accumulating a herbarium collection from this model garden, but the twigs of the various Piceas shaped but as sorry specimens when, on drying, all the needles dropped out!

If any one desired to study the habits and culture of Coniferæ, they could do much worse than spend a year in that Dedemsvaart establishment; my own recollections of nearly three years spent there are full of interest and delight. *W. C. W.*

PLANT PORTRAITS.

COLEUS THYRSOIDEUS, *Le Jardin*, May 5.

DICHORISANDRA? THYSIANA, *Revue de l'Horticulture Belge*, June.—One of M. Linden's introductions from the Belgian Congo. It is of an erect habit, with long-stalked, graceful, recurved, lanceolate, shining leaves.

GRAPE CHASSELAS DE NÉRIEPONT, *Bulletins d'Arboriculture, &c.*, April.—A Chasselas variety, with pale purple berries.

MILTONIA SPECTABILIS, *Moniteur d'Horticulture*, June 10.

PASSIFLORA DECAISNEANA, *Revue Horticole*, June 16. Referred to as a variety of P. quadrangularis.

THE ART OF TABLE DECORATION.

(*Continued from vol. xxxi., p. 437.*)

THE CALADIUM.—As an early spring and summer decorative plant this is indispensable, and for table decoration they may be divided into three sections—the miniature, the dwarf, and the tall. The miniature is represented by two varieties only: the argyrites and minus erubescens, one having white and green leaves, and is well known, and the other dark red, both affording pretty specimens for the table, either as single plants for filling in angles of designs or for grouping together in low bowls in prominent positions. The dwarf varieties, as low subjects, are amongst the most beautiful and effective the decorator can lay his hands on. The following are amongst the best:—candidum, white ground, with dark green markings; Chelsea Gem, carmine-red; Comte de Germiny, bright red, mottled with white; Comtesse de Brosse, rose colour; Exquisite, red carmine, with light green margin; La Lorraine, fiery-red, with green margin; Leonard Bause, white, with red spots; Princess of Teck, orange-red, with yellow and green margin; Rose Laing, creamy-white, with blue veins; Silver Cloud, marked by green spots and silver veins; Sir Henry Irving, white, with pink veins margined with green. The above are of dwarf habit if grown close to the glass. They may be placed on any table without intercepting the view across the table. Amongst the taller growing Caladiums which tower above the line of sight, and are noble plants, are Theodore Schmidt, green spotted with white; Mrs. Harry Veitch, a lovely variety in shades of red; Excellent, a handsome spotted variety; and Triomphe de l'Exposition, of a warm red colour. By forcing or retarding, Caladiums may be usefully employed from March to July.

PANDANUS VEITCHI

is a bright and cheerful-looking plant that never comes amiss on any table, whether as tiny plants for a small, or large specimens for large tables at banquets. A form of this variety with a golden tint was introduced a few years ago, and is likely to be useful as a table plant, and as a substitute sometimes for the white variegated species.

BEGONIAS.

The ornamental-leaved section are not well adapted for table decoration; but there is one notable exception in the case of Begonia Arthur Malet, a plant which may be used with telling effect when it is permissible to place a dark-foliaged plant on the table. The leaves are of a bright rose colour, with an appearance of a gloss of silver, the veins being of a green colour. The variegated form of Cyperus alternifolius lends itself well to this work; as does also the following, Acalypha Macafeeana, with its rich autumnal colour; Heliconia illustris rubricaulis; Marantas Veitchi, Sanderiana, and major; Alocasias Veitchi and Sanderiana; Phrynium variegatum; Ophiopogons spicatus and aureo-variegata. Eulalia variegata is quite hardy, and for table decoration it is never improved when grown in heat. The variegated Maize grown from seed makes an elegan foliaged plant for the table in various sizes, as may be desired; as does also Grevillea robusta.

Many more suitable foliage plants might be mentioned, but a sufficient number has already been indicated to guide the amateur or the learner in the art of table decorating in his selection of the best plants to grow for this purpose. *Owen Thomas.*

(*To be continued.*)

FIG. 13.—GROUP OF ECHINOCACTI, MELOCACTI, CEREUS, ETC.

CACTI.

CACTUS lovers, if few, are enthusiastic, and with good reason; the quaintness and grotesqueness of the plants, and the frequent splendour of their blossoms, confer upon them an undeniable claim to admiration. One of the best known is Cereus senilis, a native of Mexico, remarkable for the shaggy hairs with which it is beset (fig. 14). A good representation is furnished us by Mr. C. Darrah, Holly Point, Heaton Mersey, who grows these plants to great perfection. Among trade growers we may mention Messrs. Cannell, of Swanley, who exhibit fine groups at our principal shows; and M. de Laet, of Contich, Belgium, who makes a specialty of these plants.

UNITED STATES OF AMERICA.

AMERICAN CHRYSANTHEMUM SOCIETY.

A FRIENDLY correspondent, writing to me early in the spring, said that some new life was infused into the above society at a then recent meeting in Indianapolis. It is certainly about time that our American friends woke up a little, for regarded as a national society, the American one has certainly been behind its European sister societies.

Supplemental to the information contained in my friend's letter, I have just been furnished with the schedule of the first annual exhibition of this society. The society has already been existent for at least twelve or thirteen years; however, on the ground of its being better late than never, the American Chrysanthemum Society now announces the holding of its first show, and we who are interested in the progress of the flower rejoice to learn the news.

We learn, too, that a Convention will also be held, apparently on similar lines to those held on the Continent, for the show is to be held in conjunction with that held by the Chicago Horticultural Society.

The schedule provides for 185 classes, fifty-one of which are for Chrysanthemums. These are divided into two groups, viz., cut flowers and plants. Most of the classes have two prizes; occasionally there is a third, and they vary from 2 dollars to 50 dollars. In the cut blooms there is a regulation that all flowers must be exhibited on stems not less than 18 inches long, and without artificial support.

We notice one feature worthy of record, and that is in Classes 30 and 31. The first of these is for the best collection of varieties of French origin, the second for the best collection of English varieties. In each case a trophy or prize to be announced later will be offered.

In this respect I have been asked if it is possible for English or French growers to send over some exhibits, and I take the present opportunity of giving publicity to the desire expressed.

The second group is for new varieties—six classes, six blooms of one colour each; they are to be seedlings, sports, and undistributed importations. The plant classes are fourteen in number, with prizes varying from 5 dollars to 50. *C. H. P.*

THE JAPANESE PLUMS.

The British gardening papers have paid very little attention to the Japanese Plums; and from this and other sources I am led to suppose that they are still comparatively rare in England. It is rather odd that more notice has not been given to them in a country where every meritorious novelty is commonly so generously received. In this country they have been the subjects of more careful and extensive experiments than any other fruit introduced since colonial days. They have been planted in large orchards, often by thousands of trees at a time. In many parts of the country they have practically revolutionised the Plum-growing business; or, more truly speaking, they have made Plum-growing practicable where before it was always an uncertain and unsatisfactory experiment.

The Japanese Plums are more like Peaches than like the common European Plums, such as Pond's Seedling, Green Gage, or Italian Prune. Their similarity to the Peach is expressed more in their habit of growth and in their general cultural predilections. They are at their best in the climate which suits the Peach, though they succeed somewhat further north; and they prefer the light, sandy-loamy soil most favourable to the Peach. They may be propagated readily and satisfactorily on Peach roots. So far as any system of pruning has been applied to them, it has been usually the system taught for the Peach. They have the same insect and fungus foes that the Peach tree has. I have no doubt that they would make beautiful wall espaliers, treated after the manner employed with the Peach tree.

In quality the fruit is a trifle disappointing, especially to one whose idea of a Plum is formed on the conventional lines. They are very unlike such sorts as Victoria, Magnum Bonum, or Field. They are more watery and not of so high a flavour. Yet to those who become accustomed to all sorts of fruit, they have their points of superiority even here. They do not cloy the appetite, as the sugary Gages sometimes do; and there is a freshness and sprightliness to them which is always absent from the old fashioned sorts. In colour and size they are altogether attractive, with the exception of a few varieties; and they make a fine appearance in the market. They are rapidly gaining a place in the American fruit trade.

The varieties most planted in this country are Burbank, Abundance, Satsuma, Chabot, Red June. Burbank and Abundance are probably the most popular. Both are of the Botan type—that is the round, red-skinned, yellow-fleshed sorts. Satsuma is of quite another type, with its dull red skin and blood-red flesh. Chabot belongs to the Botan type, while Red June is not quite representative of either. The small cherry-like types of the species have never become popular. *F. A. Waugh, Vermont Experiment Station, U.S.A.*

FIG. 14.—CEREUS SENILIS: GROWN BY CHARLES DARRAH, ESQ., HOLLY POINT, HEATON MERSEY. (SEE P. 34.)

COLONIAL NOTES.

EMIGRATION OF GARDENERS TO AUSTRALIA.

In your issue of March 1 last, under the heading of "Colonial Notes, appears a letter from our esteemed and well-known friend Mr. Peter Barr, recommending young gardeners intending to emigrate to try Australia. The subject matter of Mr. Barr's letter was at the earliest opportunity brought before our Association, and I am requested to ask you if you would kindly publish the following in your earliest issue. Mr. Barr's name is almost a household word the world over, and is specially well remembered in New South Wales. We had the pleasure and profit of his visit a couple of years ago, and his stay extended over some months, much of our country coming under his observation. Since that time, however, things have mightily changed in this colony, in Queensland, and to a less extent in nearly every part of the continent. We are suffering the dire effects of a drought unprecedented for sixty years past; the pastoral and agricultural prospects in this colony at the present time are very gloomy, fodder and provisions of every description are high in price, wages have come down considerably, and employment is scarce. We are in for a season of depression and hard times, and deem it our duty to ask you to warn gardeners from coming to these colonies at present; we feel sure that gardeners (especially married, or those well up in the profession) would be grievously disappointed in leaving the old country for Australia at the present time. We thank Mr. Barr warmly for his notice of

our Horticultural Association, and we shall always be glad to advise young gardeners coming to Sydney; many of us in this part of the world have strong and pleasant recollections of our connection with the old land, and we are glad to hold out our hand to a fellow craftsman coming here. *Jas. W. Clay, Hon. Sec. of the Horticultural Association of N.S.W.*

THE RECLAIMING OF GRASS-LAND.

WHEN the owner of a piece of waste lawn decides to let it be waste no longer, but determines to turn it into a rosary, he will, if he have no special knowledge of the subject, turn to his *Gardeners' Chronicle;* and not, perhaps, finding the sort of information he requires, he will then enquire of the Editor. Such may be assumed to have been the case with "An Old Subscriber," writing from Ilfracombe, but whether as temporary visitor or otherwise we know not. The reply to his enquiry being rather lengthy, it could not be inserted in the usual column for such matters.

It may be stated generally that in the case of land that has not been under cultivation in recent times, it usually suffices to dig it one spit deep, and to break up the bottom soil another spit, but to leave it in position; or what is called "bastard trenching" may be adopted. In this case, a trench 2 feet wide may be taken out half-way across the piece at one end of it, the soil being wheeled on to the end of the other half, parallel with the last trench on that piece. Having done this, measure off another strip of land to be trenched, 2 feet wide, using a line and a spade to cut a notch 3 to 4 inches deep, so as to obtain a trench of the proper width throughout; then shovel off the turf 2 inches thick as before, and throw the soil into the trench in thin spadefuls, and proceed in this manner to the end of that half. A commencement is then made on the other half, the soil from the first trench opened being used to fill the last trench on the first half operated upon.

It is all very simple, although it takes many words of explanation. If the land be light, or it overlies gravel, sand, chalk, or rock at no great depth, no artificial drainage may be necessary.

A simple method of ascertaining the need or otherwise of draining, is to dig a small hole 4 feet deep, and notice if water collects to it. If no rain has fallen recently, and yet water appears in some quantity, it is an indication that drainage is necessary. Clayey loams and heavy soils generally are the better for being drained whatever the underlying formation; and if greensand comes within 3 or 4 feet of the surface, and it has no natural rapid outfall, drains may be needed. This is what may be termed a collecting and delivery stratum, and is always useful to the gardener, as water may be pumped from it, or wells formed down to it. As regards manure: if the soil be heavy, rough garden refuse, half-decayed stable litter, half-decayed tree leaves, may be freely used in the trenches, and a thick layer of quicklime forked into the soil after the trenching so as to render the vegetable matter present in the shape of roots of plants, more readily available as plant food, and destroy noxious insects. The soil if peaty will be improved by a heavy dressing of quicklime, forking it in whilst it is still unslaked.

A light soil may be benefited by cow-dung, well-rotted stable manure, and a dressing of heavy loam, but the special needs of the land can only be approximately stated without an analysis, although for the first few years the treatment we have indicated should afford fair results. Let the soil get well weathered by digging it in October and November, and leaving it rough or in ridges. After the lapse of two or three years, the land may be dug two spits deep, proceeding as at first, and if of very good quality at a greater depth, a third spit may eventually be taken.

FOREIGN CORRESPONDENCE.

LILIUM PARDALINUM AND L. HUMBOLDTI.

THE notes on p. 301 of your issue of May 10, regarding the growing of these Lilies rather surprises me. L. Humboldti is with us, in the woods, the weaker growing Lily, and pardalinum a natural "weed." L. Humboldti grows on damp slopes, mostly facing north, and associates there in droves, so to speak; it prefers the partial shelter of Pines, and is not at all particular as to soil. From the middle of May till the middle of October not one drop of rain falls throughout the region where these Lilies grow; but during the rest of the year the ground is soaked with copious rains. Of the two Lilies, L. Humboldti requires the better drained soil; it was found by me in the Sierra Nevada at an altitude of about 2,000 ft. only. L. pardalinum grows at all altitudes as high as 4,000 feet. I recollect finding it only once in "peaty soil," such as your correspondent seems to desire for it; as a rule it grows in rich loose deposits of leaf-mould, preferring sunny spots amongst brushwood. The most glorious display of them that I ever saw was in a flat basin surrounded by steep walls of Pine-grown ridges; here, in a sediment of gravel and decayed matter, it grew with such luxuriance, that the stockman who made this spot his summer-home told me he could not eradicate the "pest," even by repeated ploughing. How different from the Humboldti, which resents even transplanting with us! I have seen as many as thirty flowers to the stalk of a L. Humboldti, but never more than a dozen flowers with L. pardalinum. Either of them, according to position, will reach a height of 5 ft., being shorter in exposed sunny positions.

I send these notes as greeting to the friends of our Californian Lilies in the old country, hoping that they will prove of benefit to their plants. *Geo. Hansen, Berkeley, California.*

The Week's Work.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Mushroom-House.—The time has arrived for preparing material for the early Mushroom-bed. Unless the shed in which the manure is prepared for making up the beds in the winter is in a cool and shady situation, it would be advisable rather than run the risk of the materials getting very dry, to choose a spot under the shade of large trees, or an aspect facing north, and protect it with strawy litter in the event of much rain falling. When the required quantity of manure has been got together, let it be placed in a long heap about 2 ft. high, and turn it twice or thrice at intervals of four days, so as to prevent over-heating. When the rankness has passed off, to every cart-load of the manure add two wheelbarrowfuls of loam, and mix all well together, in order to avert any over-heating of the bed, and to add substance and quality to the produce. The loam of an old Melon-bed, or the finer particles of soil from the loam-stack, form quite suitable materials for the purpose. In making up the bed, make the materials firm by trampling them, or by other means. Place a few trial sticks in the bed, and after waiting a few days, if no signs of over-heating are observed, spawn and soil it forthwith. It is well to remind the inexperienced that horse-dung should not be used if the animals have been physicked, or are being grass fed.

Tomatos.—Since the welcome change in the weather in the third week in June, the plants have made rapid progress. The season, however, can now only be a short one, and timely and regular attention must be given to the removal of lateral shoots, and thus to concentrate the strength of the plants in the stems, which at the most should not exceed two. Up to the present, in most kinds of soil the application of water at the root will not have been called for; as soon, however, as a good set of fruit is obtained, ample supplies must regularly be afforded, and continued till the fruits begin to ripen. The ground along the lines should be mulched with stable-litter in a half-decayed state.

Runner Beans.—If mulching has not yet been applied, lose no time in laying it along the rows, and apply water at the root as often as it may appear necessary, this being a useful aid to a good set of pods. In dry weather let the plants be regularly syringed every day towards the evening. After a good set is obtained, this will not be necessary.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Budleigh, Devonshire.

The Fig.—Owing to the cold spring weather, Fig-trees were late in starting into growth, but since seasonable weather has ensued progress has been rapid, and the thinning of the shoots must be severely carried out, as overcrowding is the cause of unripened wood and little fruit next year. Let each shoot have ample space for development, so as not to shade adjacent ones. Make the leading shoots secure to the wall or trellis, and see that the roots are well supplied with water, especially on soils that are porous, and apply a mulch.

The Grape Vine.—Make the leading shoots secure with ties or nails and shreds, so that the syringe can be plied to the under sides of the leaves, to dislodge red-spider. Young shoots arising from the bottom of the Vine may be retained if they be considered necessary, and to replace old canes cut away next season. Stop sublaterals at the first leaf, and thin out the berries freely, and afford manure-water at intervals whilst the fruit is swelling, bearing in mind that the roots of all trees planted against a wall suffer from drought sooner than those in the open quarters, and that it is not safe to trust to the rainfall alone during the next two or three months. A mulch should be laid on the Vine-border, which will have the effect of lessening evaporation of moisture from the soil.

The Apple.—As soon as the summer pruning of the trees is finished, make an examination of the fruit and pick off all that are infested with the maggot and bury them, which will lessen the numbers of the Codlin moth next year. Infested fruit may be readily detected by a dark spot observed at the apex. All fruit that drops during the next six or eight weeks should be collected and given to the cattle if not fit for culinary use. Trees that are carrying a full crop will be benefited by frequent applications of manure-water from the stables or cow-sheds, and a mulch of stable litter is good for the trees. In those parts of the country in which this fruit is grown on walls, the garden engine or hose should be brought into use two or three evenings a week, the leaves being very liable to infestation by red spider. American blight is troublesome hereabouts in orchards this season, and means should be adopted for its immediate destruction—two of the best being spirits of turpentine and petroleum, which should be applied to every patch of the aphis observed. Do not let any of these liquids touch the leaves, or injury will result.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Chrysanthemums.—From the present time till the buds are taken, is a critical period as regards the insects to which the plant is liable. Should greenfly be allowed to infest them, the flower-buds will be malformed or weak, so that the cultivator must try to keep the plants quite free of this pest. We have this year ladybirds in great numbers, larvæ, and the perfect insects should do good in devouring aphis, but it will not do to depend on such extraneous assistance alone. Earwigs likewise cause great injury to the young shoots, and trapping with short lengths of Bamboo, or Broad Bean-stalks (if available), placed among the shoots; many earwigs are thus caught and killed daily by blowing or rapping out the creatures into a pailful of hot water. The syringe should still be freely used, and if at the last daily syringing clear soot-water be used it will improve the colour of the leaves and render them distasteful to aphides and thrips. It is still early yet to write about the application of stimulants to the plants, and I allude to it here as a caution not to commence until it is proved that the pots are filled with roots and the plants in need of nutriment. Provide stakes for the plants in good time, but do not secure the shoots too closely, these being safer when the top for about 6 inches in length is left unsecured.

Palms.—Where Palms are grown in small pots, as some should always be, afford them weak manure-water occasionally, made from one or other of the concentrated manures, and this should be supplemented with clear soot-water now and then during the next three months. One of the greatest aids to the growth of Palms is the free use of rain-water, applied with a syringe. Judging by the large number of Palms with yellowish leaves observed in very light houses, it would appear that the use of ample shade for Palms is not well understood or practised.

Garden Frames.—The plants now filling these handy contrivances are chiefly soft-wooded, which require considerable attention to grow them well. Primulas will need repotting, and to be stood on coal-ashes clear of each other. In potting Primulas, let the ball down deeply, in order to make the plants self-supporting, the old idea that canker of the collar was induced by deep potting being entirely erroneous. These plants are much improved by exposure at night in suitable weather. Cyclamens will require some degree of nursing, and not to be too much exposed to bright sunshine or night air, but to be afforded ventilation more or less in quantity according to the state of the weather. When the pots become well filled with roots, weak guano-water occasionally afforded is beneficial. Cinerarias may be treated on similar lines to Primulas, but are the better for being placed in a frame facing north. Examine the foliage at frequent intervals for greenfly, their worst foe.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Flowering deciduous shrubs.—Deutzia crenata, D. c. flore-pleno, and D. scabra should have the shoots that have flowered this year partially or entirely cut back to the stronger young shoots, and very weak shoots removed entirely, which will have the effect of admitting sunlight and air to those remaining. If the soil be very light or dry, afford weak liquid manure, guano, or nitrate of potash, or even nitrate of soda if growth is very feeble, at intervals of twenty-one days, and at the rate of 2 oz. per square yard, applying water immediately afterwards. Philadelphus coronarius, P. grandiflorus, and P. microphyllus should be similarly manipulated as regards the thinning and cutting back of the shoots. Nearly all species of Viburnum should be pruned after flowering has ceased, slightly cutting back the shoots that have borne flowers, and giving symmetry to the heads. Weigelas, which are quite unsurpassable as flowering shrubs in the summer and autumn, should not become crowded with branches; but excepting in the case of the stronger growing species such as candida and amabilis, the pruning-knife should be sparingly used, and only misplaced branches cut away at this season. The bushes require in light soils copious supplies of water, and occasional weak liquid-manure. All varieties of the Lilac, especially those that are grafted, should have all root suckers removed as soon as they appear. Lilacs, especially those not yet established, like plenty of moisture, and should not be allowed to become too dry at the root [after August is out, dryness does more good than harm. ED.].

Dahlias will now require frequent attention in removing weak shoots whilst quite young, a limited number of strong shoots more or less according to the object of the cultivator being retained, and secured to stout stakes with strong bands of raffia, and by preference securing each one separately, any bundling or crowding being detrimental to good flowering. As the flower-buds appear, remove those at the side, and leave only the central bud. The plants should be freed from insect pests, especially earwigs, which do much injury to the florets before they develop, and eat out the points of the shoots. A mulch with short stable-litter is beneficial; as also frequent applications of weak liquid-manure after the flower-buds are formed. Where Dahlias are grown for exhibition purposes, the flower-buds when about to expand should be protected from heavy rain and ardent sunshine.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Cattleya Harrisonæ.—Established plants now developing their new pseudo-bulbs, the flower-buds being in many cases visible in the sheath, should now be afforded a light position in the Cattleya-house, and be watered as often as they may require till the flowering stage has passed.

Lælia elegans and Lælio-Cattleya Schilleriana.—Afford water very freely to these until they have flowered. Cultivate them together with the long-bulbed Cattleya, where they may be afforded the amount of light so necessary to them. Both of these being natural hybrids, the periods of growth and of flowering are somewhat irregular, and it is impossible to state the best date for re-potting. But if this is needful, do it directly it is seen that new roots are being emitted at the base of the new growth. Use a compost of one-half good turfy peat, and a quarter part each of leaf-soil and chopped sphagnum. Make good drainage by the use of the Fern-rhizomes from the peat, and pot rather firmly. Remove some of the back pseudo-bulbs, retaining not more than two or three behind each lead.

Odontoglossums.—Some of the plants in this house have their growth sufficiently advanced to be ready for re-potting or re-surfacing, viz., O. crispum, O. cirrosum, O. cordatum, H. Hallii, O. triumphans, O. luteo-purpureum, and varieties of the above species. Use a compost of two parts fibrous-peat, two parts chopped sphagnum, and one part good Oak-leaf soil, and let it be well mixed together. Chopped rhizomes from the peat should be used for drainage. Pot rather lightly, leaving the compost very porous, that the roots may penetrate the compost and fill the lower portions of the pots with roots, where Fern rhizomes are now used for drainage in place of the ancient crocks. It is obvious that roots that can be encouraged to strike down into the lower part of the compost, and amongst the rhizomes, are far better able to perform their work than when through hard potting they curl and twist about on the surface exposed to the air, and to slugs or other insects that may be in the house. Do not pot an Odontoglossum not needing this operation, but be even more careful that plants that are ready for a shift have not to wait for it. Do not make one or two stated seasons the only times that you look over your Odontoglossums for this purpose. When growth has attained the height of 1 to 3 inches, the plant should be repotted, and harm may be done to the new roots and to the general health of such a plant if it be left until August or September. In an Odontoglossum-house there are not many weeks, or even days, when there is not a plant or several plants ready for potting. After potting, care must be exercised in affording water until the new growth has advanced and roots have entered the new compost. Syringe the plants frequently during bright weather, and when the weather is dull increase, if possible, the humidity in the house by frequently damping the surfaces of the floor and staging, &c. Be careful to afford ample ventilation.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

The Orchard House.—Cherry-trees growing in the borders, and from which the fruit is gathered, should be frequently syringed, and if necessary an insecticide should be used for the destruction of insects, it being essential that the foliage be preserved for as long a time as possible. Keep the house cool, thin the wood sufficiently, that which remains will be properly ripened; and if the soil is dry afford water copiously, and weak manure-water occasionally. Cherry and other fruit-trees growing in pots from which the fruit is gathered should be plunged out-of-doors in coal-ashes, not allowing them to get dry at the roots, and affording manure-water occasionally; keep the foliage healthy as long as possible. Plum-trees growing too strongly to wood at the expense of the fruit, may at this season have thick fibreless roots cut back, and many of the roots brought near to the surface of the border, laying them in finely-chopped fresh turfy-loam, be shaded for a few days, and syringed twice or thrice daily, closing the house with a good sun-heat in the afternoon, but opening it late in the evening. This operation will make fruitful trees next year.

Late Unheated Peach-house.—When the fruits have finished stoning, thin them finally, leaving them at about one per square foot, which is a good crop; shorten all growths to three leaves, unless terminal, or the shoots for fruiting next year. Very gross shoots should be entirely removed. Syringe the trees twice daily, excepting in dull weather; keep the foliage free from red-spider, thrips, or aphis, for good Peaches can only be produced when the foliage is kept in a healthy, clean condition. If the borders consist of heavy loam, which is that best suited for the Peach, previous waterings may have made the border sweet enough till the crop of fruit is ripe. Borders made of light soils grow trees weaker than otherwise, and a heavy sprinkling of an artificial manure should be applied, followed by a copious application of water or diluted liquid manure from the cowshed. The house may be closed with sun-heat from 4 to 6 P.M., and opened late in the evening.

Earlier Peach-house.—If the fruit is ripening, cease to syringe the trees, and ventilate freely. Let previous directions in reference to the Peach be carried out. See that the borders do not lack water after the crop is gathered, and keep the foliage clean.

The Early-forced Peach-house.—Afford all the ventilation possible, and maintain the foliage in a healthy state by syringing it, and using if necessary an insecticide.

THE BITTER TASTE OF CUCUMBERS is caused by the action of the sun's rays on the fruit. So long as a Cucumber remains in the shade of the foliage, it retains its pleasant flavour; when, however, the rigidity of the leaves relaxes through great sunheat, and the latter offer but little shade, the fruit becomes bitter. The obvious means to employ are—shade for the fruit, good culture, and abundance of water. *Illustrirte Nützliche Blutter.*

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* EDITOR, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	JULY 22	Royal Horticultural Society, Committees Meet. and Nat. Carnation and Picotee Society's Show, at Drill Hall, Westminster. Tibshelf Rose Show.
WEDNESDAY	JULY 23	Durham, North, and Newcastle Botanical and Horticultural Society's Show, at Newcastle (3 days). Cardiff and County Horticultural Society, Show (2 days).
THURSDAY,	JULY 24	North-East Agricultural Association, Ireland, Rose Show at Belfast (2 days).
FRIDAY,	JULY 25	Handsworth (Staffs) Horticultural Society, Show (2 days).

SALES FOR THE WEEK.

WEDNESDAY, JULY 23—
Cricklewood Nursery, at the Mart, Tokenhouse Yard, by Pollexfen & Co.

THURSDAY, JULY 24—
At Thorpe Station Estate, Thorpe Essex. Freehold Building Land, by Protheroe & Morris, at 2.

FRIDAY, JULY 25—
Orchids in variety, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12 30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —63 4°.

ACTUAL TEMPERATURES:—
LONDON.—*July* 16 (6 P.M.): Max. 75°: Min. 60°.
July 17—Fine, dry, sunny.
PROVINCES.—*July* 16 (6 P.M.): Max. 65°, S. Coast; Min. 52°, Orkney.

The Royal Horticultural Society.

THE subjoined appeal to the Fellows of the Royal Horticultural Society has lately been circulated. The need for a Hall and Offices is so urgent, and the conditions for supplying that need are so favourable, that we anticipate a speedy and a generous response to the President's appeal.

The claims of the Society upon those who utilise its meetings for purposes of business are so strong that considerable assistance may reasonably be looked for from the members of the horticultural trades.

Amateurs also will doubtless contribute largely, as some have already done. Moreover, a multitude of small subscriptions will be as welcome in their way as a smaller number of contributions of larger amount. They will show how widely spread is the interest in the Society, and afford an indication of the confidence reposed in its officials.

The Society has also claims on the generosity of the general public, for certainly no similar society has, to anything like the same degree, contributed to the public welfare. In other countries a large amount of state aid would be granted to a society recognised as one "of public utility." In this country, wherever it is possible we prefer individual enterprise to government assistance. In addition then to the help that horticulturists should be eager to give, we may fairly hope that the outside public will also show their appreciation of the great public services rendered by the Society.

A suitable site for the proposed Hall was secured mainly through the good offices of Baron SCHRÖDER. On that site an exhibition hall, with adequate lecture-theatre, accommodation for the Lindley library, and other offices, must be erected. Not less than thirty thousand pounds can be estimated as the cost of the building, and of that sum a large portion had been paid or promised before the appeal was generally circulated.

Now that the requirements of the Society are generally made known, it is to be hoped that the sum still required will speedily be forthcoming, so that the Centenary of the Society in 1904 may fittingly be celebrated by providing the Society with what it has never had—a home of its own.

"At a Special General Meeting of the Royal Horticultural Society, held on March 21, and largely attended, it was resolved to adopt a proposal to build on a site facing Vincent Square, Westminster, a Horticultural Hall and Offices in commemoration of the Centenary of the Society in 1904.

"The Society has no home—a want of such national importance that, as long ago as 1890, His Majesty the KING addressed to the Society the following words:—'I sincerely hope that your labours to obtain a Hall may be successful, for I feel sure that it would be of the greatest use and advantage.' Since 1890 the necessity for increased and better accommodation has become more and more obvious. The Drill Hall is badly lighted, and it is frequently impossible to find room for the plants sent, while the valuable work of the committees is carried on under great difficulties and constant interruption. During the afternoon the Hall is often so crowded that circulation becomes impossible, and so noisy that the lecture is inaudible. The limited office accommodation, which cannot be increased here, is a serious impediment to the proper discharge of secretarial and other work.

"The present position of the Society fully justifies the adoption of the proposal; it has now 6,000 Fellows on its roll, and large numbers are continually joining it. The financial position is satisfactory; but even more important is the high credit enjoyed by the Society among horticulturists of every class. At home and abroad it is the recognised head of British horticulture, and many of the most distinguished scientific and practical horticulturists in the kingdom serve on its committees, and contribute to its *Journal*.

"The proposed buildings will involve, it is believed, an expenditure of from twenty-five thousand to thirty thousand pounds, towards which unsolicited promises have been made already of nearly ten thousand pounds. *Trevor Lawrence, President.*"

GROUP OF SOUVENIR DE LA MALMAISON CARNATIONS IN CAPTAIN E. A. ADCOCK'S GARDEN, REDLANDS, BROADSTAIRS (Supplementary Illustration).—Our illustration in the present issue presents our readers with a view of a group of plants in bloom of the favourite "Malmaison" Carnation, than which few varieties are more deliciously or more refreshingly fragrant. The gardener, Mr. WEST, it is evident from the vigour of the plants, as indicated by their stature and the large size of the flowers, is master of the art of cultivating the plant.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committees of the Royal Horticultural Society will be held on Tuesday, July 22, in the Drill Hall, Buckingham Gate, Westminster, 1 to 6 P.M. At this meeting plants, other than for Certificates, can only be shown in very small groups, and then only by pre-arrangement with the Superintendent. A lecture on "The Botanic Gardens and Flora of Malta," illustrated by limelight, will be given by the Rev. Prof. GEORGE HENSLOW, M.A., V.M.H., at 3 o'clock.

—— At a general meeting of the Royal Horticultural Society, held on Tuesday, July 8, seventy-four new Fellows were elected, amongst them being Viscountess Strathallan, Lady Fermoy, Lady Savile, Lady Clementi-Smith, Sir Cecil Clementi-Smith, K.C.M.G., Col. Carruthers, and the Hon. Cecil Campbell, making a total of 826 elected since the beginning of the present year.

—— CRYSTAL PALACE FRUIT SHOW.—The Royal Horticultural Society's ninth Great Annual Show of British-grown Fruit will be held at the Crystal Palace on September 18, 19, and 20. For schedule of prizes, including special ones for bottled and preserved fruits, and full particulars, apply to the Secretary, R.H.S., 117, Victoria Street, S.W.

—— NATIONAL CARNATION AND PICOTEE SOCIETY.—The National Carnation and Picotee Society will hold their annual show on Tuesday, July 22, in the Drill Hall, Buckingham Gate, Westminster, 1 to 6 P.M.

M. MARC MICHELI.—The news of the death of this accomplished botanist and horticulturist will be received with the greatest concern by those who had the privilege of his acquaintance. M. MICHELI died in his fifty-eighth year, on June 29. In his garden at the Château du Crest, near Geneva, he had accumulated an interesting collection of plants, which he tended, not only with the solicitude of an earnest horticulturist, but with the knowledge and interest of the botanist. This was exemplified by the catalogue which he published a few years ago, and which is a valuable work of reference to those who desire to acquire accurate information concerning the plants they grow. At one time M. MICHELI published an annual review of the progress of vegetable physiology, a summary which was of great usefulness to those who, though unable to take part in it, were nevertheless desirous of following the progress of the science. M. MICHELI also studied the Leguminosæ of Paraguay, New Granada, and other districts of South America. At the more important continental congresses and exhibitions, M. MICHELI was a frequent attendant and visited this country also on several occasions, and was an occasional contributor to our columns and to those of the *Revue Horticole*.

FEVER IN PLANTS.—Although animals and plants seem, at first sight, to be two absolutely distinct groups, and to have little in common, closer investigation points unmistakably to the fact that they are very similar and very closely related to one another. Further, many organisms are known which it is impossible to class with certainty as plants or animals. Let us confine our attention for a moment to one of the ordinarily recognised signs of life, namely, breathing or respiration. Both animals and plants breathe. In both oxygen is taken in from the air, and after certain changes carbon dioxide is given out. This process, it is true, is masked in green plants, during exposure to sunlight by another

Group of Souvenir de la Malmaison Carnations in Captain E. A. Adcock's Garden, Redlands, Broadstairs: photograph by Swaine and Co., Broadstairs.

process in which carbon dioxide is taken in and oxygen given out. It goes on, however, in a plant as steadily as in an animal, and there is no essential difference between the respiration of man and that of the humblest vegetable he cultivates. In man it is not uncommon to find that when the health is affected his temperature rises; in other words, he becomes feverish. At the same time the rate of breathing is often increased. Is this true of plants also? Can we throw a Potato or an Onion into a fever? The idea seems absurd. Yet it is an ascertained fact. It was shown by Mr. H. M. RICHARDS (*Annals of Botany*, vol. xi., p. 30) that if Potatos or Onions were sliced—that is to say, wounded—their temperature rose, and their breathing became more vigorous. They exhibited in fact two of the characteristic symptoms of a feverish person. The rise of temperature was carefully measured; in some cases it was as much as 3° C. The course of the fever was followed, and was found to reach its height usually about twenty-four hours after the injury; the temperature then began to fall, and reached the normal again on the fourth or fifth day. Experiments such as these help to bring home to one in a striking manner the fundamental relationship between animals and plants. "*Agricultural News*," *Barbados*.

"AGRICULTURAL RETURNS FOR GREAT BRITAIN."—We note the publication, by the Board of Agriculture, of the Agricultural Returns (for 1901) for Great Britain, showing the acreage and produce of crops, prices of corn, and number of live-stock, with statistics for the United Kingdom, British Possessions, and foreign countries. As regards Great Britain, we hear that the special returns collected in 1895 showed that a further area (exclusive of mountain and heath land) of 2,726,000 acres, was occupied by woods and plantations, while the total acreage of crops and grass returned at the present time as cultivated amounts to 32,417,000 acres. It would thus appear that about 85 per cent. of the measured surface of the country is accounted for as employed for the purposes of agriculture and forestry. Descending to details: "The diminution by 144,000 acres, or nearly 8 per cent., of the area under Wheat in Great Britain followed upon similar losses of 256,000 acres and 101,000 acres respectively in the two years immediately preceding. Some tendency to restrict Wheat-growing was apparent in almost every county. The reduction by 18,000 acres of the area under Barley represents no material change in England; but on the smaller area devoted to this crop in Wales and Scotland, the decline was relatively more serious. The year showed the total acreage of Oats in Great Britain to be less by 29,000 acres. An increase of nearly 16,000 acres, or 2·8 per cent., in the area devoted to Potatos has to be set against the general tendency to reduce the extent of land under tillage crops, and this addition brought the acreage of Potatos up to 577,000 acres—a larger total than has been recorded since 1899. There was a persistent reduction in the acreage returned as under Turnips or Swedes, and under Cabbage, Kohl Rabi, and Rape. The total surface under Lucerne now reaches to 44,000 acres, or double that which was grown only seven years ago. Clover, Sainfoin, and rotation grasses showed an increase. As regards the produce of these crops, Potatos were the best harvest of the year, the total production for Great Britain being estimated at 3,671,000 tons from 577,000 acres, or an average yield of 6⅓ tons per acre. This was about half a ton above the average, and on the increased acreage brought the production up to a higher figure than has been recorded in any year since 1884. The quality and condition of the tubers were reported as good, particularly in Scotland, but there were some complaints of smallness in the earlier varieties. Disease appeared in some counties, but without inflicting widespread injury. In Scotland the crop seems to have almost entirely escaped it. Turning to the tables showing the acreage under various crops in the several British counties, we find the total area for small fruit in England returned as 67,828 acres; 22,778 acres, or more than a third of that sum of acres, being contributed by Kent. The same county returns an area of 27,175 acres under orchards in a total area, for all England, of 228,580 acres. We have no space for further quotations, but the statistics are of great interest to all connected with agriculture. As the title of the publication indicates, there are included in the volume tables and statistics of imports, and of colonial and foreign statistics. These are useful for purposes of comparison, and many are arranged for that object.

DEUTZIA.—M. EMILE LEMOINE publishes in the *Journal de la Société Nationale d'Horticulture de France* for April a monographic list of the species of this beautiful group. Some twelve varieties of Deutzia crenata alone are recorded. Eight hybrid varieties, mostly raised by M. LEMOINE, are also described.

THE COLORADO BEETLE.—In view of the alleged reappearance of this destructive insect, the Board of Agriculture has issued a leaflet describing the beetle, and accompanied by a coloured plate, showing the insect in various stages of its development.

"ICONES SELECTÆ HORTI THENENSIS."—We have often had occasion to speak of the beauty and accuracy of the illustrations of this work, and to appreciate the critical botanical observations of M. DE WILDEMAN. Plate 91 is devoted to the illustration of a very old and fragrant inhabitant of our gardens, Magnolia, or as it is now called Michelia, fuscata. The remaining plants figured are Kiggelæria africana, Elæocarpus cyaneus, Phyllis nobla, Codonanthe Devosiana, a Brazilian trailing Gesnerad, once grown in this country as Æschynanthus albus, or Hypocyrta gracilis, Dichroa febrifuga, the adopted name for the well-known Adamia cyanea, Melaleuca fulgens, Symphoricarpus oreophilus, Falkia repens, and Piper unguiculatum.

HOOKER'S "ICONES PLANTARUM."—Part 2 of the 8th volume, 4th series, contains, as usual, figures and descriptions of interesting plants from the Kew Herbarium. For the most part the species figured are of botanical interest mainly. From this point of view they are specially noteworthy, and some of them will doubtless, sooner or later, make their appearance in our gardens. Several represent new species, or even new genera, and they illustrate the floras of China, the Seychelles, North-west Australia, Borneo, the Solomon Islands, Burma, and other countries. Siebera deflexa, Bentham, Hemsley, in *Gardeners' Chronicle*, xxx., 1901, p. 363, is remarkable as furnishing an edible tuber. It is an umbelliferous shrub; native of West Australia.

THE ALPINE GARDEN NEAR GENEVA.—We learn, from M. H. CORREVON, that the alpine garden, formerly at Plainpalais, is in October to be removed to Floraire, Chêne-Bourg, a quarter-of-an-hour by tram from Geneva. A complete illustrated catalogue of the plants, and a plan of the garden, is in course of publication, and can be obtained from M. CORREVON.

THE DANGERS OF SEWAGE AS A MANURE.—The Minister of Public Works in France has prohibited the cultivation of such salads or vegetables grown on sewage farms as are intended for consumption in the uncooked state. "Just recently," says the *Pharmaceutical Journal*, June 28, "two distinguished French bacteriologists, Messrs. BOURGES and WURTZ, have pushed these experiments still further. They resolved to see if it were not possible to find the Koch bacillus *in* the Radishes, &c., sown in tuberculised soil. To this end three flower-pots were filled with soil and sown respectively with Radish, Lettuce, and Cress seeds. They were duly sprinkled from time to time with water containing the Koch bacilli. At the end of a certain period portions of leaves were broken off and inoculated into the peritoneum of several guinea-pigs. In eighteen out of thirty cases the results were positive—that is to say, that the tuberculosis bacilli has passed from the soil in which the seeds had been sown into the leaves of Cress, Radishes, and Lettuce. Messrs. BOURGES and WURTZ have made a similar experiment with the bacillus of typhoid fever. This time, not eighteen out of thirty, but in every case the bacillus was found with the greatest facility in the leaves of the vegetables experimented upon." The late Mr. ALFRED SMEE, it will be remembered, preached the same doctrine years ago, and pointed out the danger of eating uncooked vegetables from land dressed with sewage.

CORDYLINE (DRACÆNA) TERMINALIS.—*Kunth*, "*Ti*." *Beechey* (i., 130), speaks of its leaves as affording the common food of hogs and goats, and wrappers for cooking; the root affords a very saccharine liquor, resembling molasses, which is obtained by baking it in the ground. The islanders also made a tea from the root. This is undoubtedly the best known plant of the island, and M'Coy, one of the original settlers, who in early life was employed in a distillery in Scotland, introduced the practice of preparing a fiery liquor from the root, which was known as "rum," and which was the means of causing much trouble in the island for a long period of years. For an account of the distillation in other Polynesian islands, see *Ellis*, i., 229. Maiden, *Notes on the Botany of Pitcairn Island*.

BISHOP'S PARK, LAMBETH.—This favourite "Open space," acquired within the past two years, is about to be extended by the addition of a space, 8½ acres in extent, and known to the neighbourhood as Milder's Meadows. The cost of the addition including laying out and embanking, is placed at £16,000; of which one-fourth will be found by the local authority, the remainder by the London County Council.

POISONOUS GRASSES.—The existence of poisonous grasses is very exceptional. It appears, however, that the young plants of the great Millet, Sorghum vulgare, have proved fatal to animals. This poisonous effect is confined to the foliage, which contains a small percentage of prussic acid, or of some substance (glucoside), capable of transformation into that acid. The subject is under investigation by Mr. W. R. DUNSTAN, the director of the Scientific department of the Imperial Institute, who publishes a short account of his researches in the *Proceedings of the Royal Society*, June 19, 1902.

PLANT DISEASES.—Under the title, *Atlas der Krankheiten und Beschädigungen unserer Landwirtschaftl. Kulturpflanzen*, Dr. O. KIRCHNER and H. BOLTSHAUSER have published a series of coloured illustrations of some of the more common maladies of cultivated plants,

agricultural and others. The part before us is devoted principally to the Vine. Although the text is in German, the excellent coloured plates render it available for gardeners of any nationality, who will find represented several of the most destructive fungi and insects. It is published by EUGEN ULMER, of Stuttgart, and may be had from Messrs. WILLIAMS & NORGATE.

RHUS TYPHINA.—This is of straggling habit, as usually seen—a circumstance which somewhat detracts from its appearance; but at Kew there is a bed in which the shrubs have been grown to one stem, and pollarded. The effect is novel and picturesque.

"THE BRITISH MOSS FLORA."—The twenty-first part of this beautifully executed work has been published, and may be had from the author, Dr. BRAITHWAITE, 26, Endymion Road, Brixton Hill. The present part contains the continuation of the Hypnaceæ.

VINEYARDS AND ORCHARDS IN MORAVIA.—*The history of the Moravian Fruit, Vine, and Horticultural Association*, from 1816 to 1896. Published by the same at Brünn, 1898. This work of 380 pp., was undertaken by Mr. LEOPOLD KRIWANEK, director of the Pomological Gardens of the Association, with the assistance of the Vice-President M. THEOBALD SUCHANEK, and was published on the occasion of the 50th year's Jubilee of the Kaizer FRANZ JOSEPH. Of general interest is the information conveyed in the introduction. We learn that the total area under Vines and fruits in the Markgrafschaft, Moravia, amounts to about 230 square kilometres, or 1 per cent. of the whole province. The vineyards yield a yearly vintage of 170,000 to 200,000 hectolitres, the latter measure of capacity being equal to about 22 gallons and 1 pint. The three southern districts, Hradisch, Brünn, and Znaim, grow the finest fruits and the best Grapes. The chief fruit grown is the Zwetsche Plum. In the northern and eastern portions of the country, Apples succeed admirably, and especially the varieties Gravenstein, the brilliant coloured Cardinal, the Bohemian red Jungernapfel, Edelborsdorfer, or Mischensker, the gray French Spital Reinette or Lederapfel; Gold Reinette, and several more. Of Pears mention is made of the Herbst, Butterbirne (Autumn Beurré), Beurré Diel, a variety largely cultivated as a Market Pear, Trout, Virgouleuse, and Grey Autumn Beurré. About Hradisch, the Brünner Zwetsche, which like the Haus or Common Zwetsche is much valued for drying (Prunes), and exceeds the latter in aroma.

"JOURNAL OF TROPICAL AGRICULTURE."—The number of the *Journal d'Agriculture Tropicale* for June 30 includes among its contents, articles and notes on: Chanvre de Maurice, Opuntias utiles et nuisibles, Canne à sucre et bouillie bordelaise, Huileries de coco modernes, Moissonneuses à riz, Culture du Teek, &c. We note many well-known names among the contributors. The journal is issued by J. VILBOUCHEVITCH, 10, Rue Delambre, Paris.

WASH FOR ST. JOSÉ SCALE.—A wash is recommended by the Agricultural Experiment Station, Illinois, for this scale which would doubtless be equally effective against other scales. The wash known as the Oregon Wash is thus prepared. Slake 15 lb. of lime in a little water, and add 15 lb. flowers-of-sulphur, stirring the mixture. Then boil it for one hour, and afterwards add 1¼ lb. blue vitriol dissolved in hot water. The full effect will be produced in about a week, and that frequent short rains will not noticeably diminish or delay its action, even when they come within the first five days after the insecticide treatment. It is entirely harmless to any leafless tree, and hence may be freely used in winter, *but in winter only*, for all kinds of trees, shrubs, and vines. It should be generally known that this wash corrodes brass and copper rapidly, and that consequently an iron pump may be used to better advantage in spraying them than one made in part of brass.

GLASSHOUSES IN VERNON PARK, STOCKPORT.—The Corporation of Stockport have accepted the design and estimate of Messrs. MESSENGER AND CO., Horticultural Builders, Loughborough and London, for the erection of a large range of glasshouses at Vernon Park, in that town.

AN ANNUAL OUTING.—On Wednesday next, July 23, the members of the National Chrysanthemum Society will visit the gardens and grounds of Paddockhurst, near Worth, Sussex, the residence of Sir WEETMAN D. PEARSON, Bart., M.P. They will travel by train from Victoria Station at 10.40 A.M. Dinner and tea will be provided at Paddockhurst. Particulars may be obtained of Mr. R. DEAN, Secretary, Ranelagh Road, Ealing.

SWEET PEAS IN QUANTITY.—We are informed by Messrs. E. W. KING AND CO., Coggeshall, Essex, that they have now in flower 6 acres of Sweet Peas, including seventy-two choice varieties cultivated for seedling purposes.

LATHYRUS LATIFOLIUS GRANDIFLORUS ALBA.—We are again reminded of the extraordinary vigour of this new white-flowered perennial Pea by a correspondent at Norwich, who has sent a spray of flowers showing twenty blooms upon a spike.

GREAT HYACINTH AND TULIP COMPETITION FOR 1903.—The Royal Bulb-growing Society of Haarlem have offered, and the Royal Horticultural Society have accepted, a grand prize for Hyacinths and another for Tulips, to be competed for at the Drill Hall on or about March 24, 1903, as follows:—120 Hyacinths in pots (single spikes) in 40 varieties, not more than 3 pots of any one variety, open, 1st prize, £7; 2nd prize, £5; 3rd prize, £3. 100 pots of Tulips in 50 varieties, 3 plants of the same variety in each pot, and not more than 2 pots of any one variety, open, 1st prize, £4; 2nd prize, £3; 3rd prize, £2.

MANURE FOR ROSES.—Artificial manures, says a German contemporary, if properly chosen and applied, are the most useful, as by their use vigorous growth and fine flowers are obtained. Raw bone-meal, in point of usefulness, is preferable to manures containing phosphoric acid; but the manure most to be recommended is potash, and two dressings afforded during the summer have all the favourable results which one can desire from a manure.

MR. AND MRS. CULVERWELL.—The gardening community will be interested to learn that Mr. and Mrs. CULVERWELL, late of the Gardens, Thorpe Perrow, now of Ivy Cottage, Fencote, near Bedale, celebrated their golden wedding on June 22, 1902, and were the recipients of a number of congratulatory letters, and valuable tokens of esteem from their numerous friends. These included a handsome golden cup, bearing the following inscription: "June 22, 1902. — To Mr. and Mrs. CULVERWELL, on their golden wedding day, from their attached friends of the MILBANK family." Also a magnificent golden spoon, similar in design to that which will be used at the Coronation ceremony, being the gift of Lady MILBANK, Norton Manor, Radnorshire. It is pleasing to be able to state that Mr. and Mrs. CULVERWELL are both enjoying excellent health, and are as enthusiastic in their gardening pursuits as ever; in fact, some of Mr. CULVERWELL'S latest hybrids of Peas will be amongst the best he has raised.

HÆMANTHUS.—In the *Journal de la Société Nationale d'Horticulture de France*, for April, M. DE WILDEMAN has a valuable monograph on the species of Hæmanthus, or rather of the subgenus Nerissa, distinguished by the possession of membranous leaves, spathe lobes spreading or reflexed, and segments of the perianth spreading. This monograph needs to be consulted by all those interested in the botany of this fine genus.

"DAS PFLANZENREICH."—The last part of this colossal undertaking, published under the superintendence of Prof. ENGLER, is devoted to the monograph of the genera and species of Myrsinaceæ by Mr. CARL MEZ. Analytical "keys" as well as full descriptions are given. Setting aside the genera Ardisia and Clavija, there are not many plants of horticultural interest in the order. It occupies 437 pages, has an exhaustive index, and a list of collectors' numbers which greatly facilitates the work of the student.

A CRICKET CHALLENGE.—It seems improbable that such grave and practically-minded persons as members of the Royal Horticultural Society's committees would at any time show a disposition to become frolicsome, but it is a fact that the other day at Chiswick some of the Fruit Committee did, possibly inspired by the surroundings, actually propose that the committee, as a body, do challenge the Floral Committee to a game of cricket at no remote date. How the proposal may be viewed by the gentlemen of flowers it is not possible to tell, but the Cabbage and Potato men regarded it with great pleasure and satisfaction, even going so far as to select from both bodies the most capable champions. More may be heard of the proposal when the committees meet at the Drill Hall on Tuesday next.

FRUIT, ETC., OF NEW SOUTH WALES.—The production of wine in N.S.W., during the year ending March 31, was 866,316 gallons, as compared with 891,190 in the preceding year. The production of Grapes for table use was 3,342 tons, as compared with 4,214 tons last year. In 1901-2 the number of Oranges produced amounted to 7,243,212 dozens, as compared with 6,486,276 dozens.

LAW NOTES.

SALE OF XL ALL VAPORISING LIQUID.

AT the Kingston County Court recently, before Mr. John Innes (in the chair), and other magistrates, three summonses were returnable against Mr. Joseph Hutchinson, grain, seed, and artificial manure merchant, of Cobham and Leatherhead, all arising out of the sale by him of a bottle of liquid fumigator, containing nicotine, which is a poison under the Pharmacy Act.

Mr. R. Vaughan Williams, barrister, appeared to prosecute, and Mr. Thos. G. Dobbs, secretary and solicitor to the Traders in Poison &c., Protection Society, represented the defendant. Mr. Vaughan Williams said the prosecution had been set in motion by the Pharmaceutical

Society of Great Britain, and arose upon the sale, at the defendant's shop at Cobham of a certain bottle of liquid containing a very considerable quantity of nicotine, which was a poisonous vegetable alkaloid. The quantity sold was sufficient to have poisoned hundreds of people, if by chance they had come in contact with it in their food or otherwise. On May 5, Mr. G. H. Steer bought a bottle of what was known as "XL All Vaporising Fumigator," a patent, manufactured by Mr. C. H. Richards, 128, Southwark Street, London, S.E., and used by gardeners for fumigating purposes and for destroying insect life, and so on, in greenhouses. The transaction was carried out by the defendant's brother, Mr. Thomas Hutchinson, to whom the purchaser was quite unknown, and it would be clearly shown that the proper formalities under the Act had not been complied with. Mr. G. H. Steer of Brixton, gave evidence as to the purchase of the article, and Mr. Thomas Ticknell, analyst said one grain of nicotine was sufficient to kill two or three people.

Mr. Dobbs did not contest the facts, but contended that particular compound was not a poison within the meaning of the Pharmacy Act of 1868. He challenged his friend to refer to any reported case in the High Court where a conviction had been upheld in which an article of this kind had been sold simply and solely for trade purposes. The Bench imposed a fine of £2 on each summons including costs.

A PLANT-COVERED DOG-KENNEL.

THERE is no end to the vagaries of the owners of pet dogs in regard to housing, decorating, and feeding them, some sensible, some ridiculous; as, for example, providing them with linen collars *à la mode*, kerchiefs, pockets, purses, brooches, &c. The lady, whose gardener sent the photograph which we here reproduce, thought that she would provide a cool summer retreat for her pug-dogs, and designed a kennel covered with living Echeverias, probably the variety glauca. This she was enabled to do by making the kennel with double walls and roof a few inches apart, the enclosed space being filled with soil. Then 999 holes were bored in the outer casing, through which the roots of the plants were pushed into the soil (fig. 15).

FIG. 15.—A DOG-KENNEL DECORATED WITH PLANTS OF ECHEVERIA.

HOME CORRESPONDENCE.

FRUIT-TREES PLANTED BY THE ROAD-SIDES.—Referring to this perennial topic, it may be said that none of the writers seem to have very clear ideas of the subject, or knowledge of the settled old world conditions prevailing in most parts of the most conservative country in the world, which hinder the furtherance of fruit-tree planting. In this connection I refer chiefly to England. So far as our old roads and lanes are concerned, the land by the sides of the same is utterly unsuited for fruit-tree planting by reason of the hedges which bound them. Anyone hoping to get fruit of any but the poorest description excepting Damsons, would be grievously disappointed, the ground on both sides of the hedges being too much impoverished by the roots of the hedge plants to permit of other plants doing any good. First, we must grub up our hedgerows, and thus rob the country-side of much of its peculiar charm, and deprive it of shelter, useful for stock and crops, or plant in rows some 20 feet away from the hedges. Would it pay in the latter case? Twenty feet distant from the hedge would mean in actuality 25 feet of space, measured from the hedge to the farthest extent of the roots of the fruit-trees which would be lost to the plough if arable land, and yet would have to be cultivated by the spade, or otherwise kept clean. Who would undertake this sort of work? Not the farmer we fear, unless he cared to crop it with Potatos. On grass-land the difficulties would not be so great. On the Continent there are no hedges by the sides of the roads or dividing fields, and the land is clear for planting trees, be they fruit-trees, Poplars, or what not. Given land free of hedgerows and hedgerow timber, landowners and farmers could obtain considerable returns from road-side fruit-trees and Walnuts; but encumbered with hedges and timber trees (although the latter have scarcely any market value as timber, being pollards or short-stemmed trees, consisting chiefly of large limbs), they can do nothing better than plant fruit trees in orchards as at present. *One who knows.*

STRAWBERRIES, MONARCH, LEADER, ETC.—Probably my experience with the Strawberry Monarch will be of interest to your correspondent "H. J. C." and others. Soon after its introduction, having seen plants in fruit exhibited by the Messrs. Laxton, I purchased a stock of runners, and put out in trial plantation with some others also on trial. The following season all the varieties produced fruit, with exception of Monarch, one plant only of that variety showing fruit, the rest were blind, but vigorous. Reading in your columns of others having similar results, I decided the variety was not worth propagating, and allowed the lot to be dug-in the third year. In a year or two after I was exhibiting at Wolverhampton, and was placed 2nd for three dishes, Mr. Barnes of Eaton being 1st, amongst his lot being an exceedingly good dish of Monarch, on seeing which I at once decided I had been too hasty in condemning the variety. Having to call at Withington Nurseries, on Mr. Jno. Watkins, I asked him if he had the variety in stock, when he replied "Yes, we do keep it, but the runners are very weak, not being popular we do not give it much attention; still, I am of opinion it is a much better variety now than most growers give it credit for being." I procured fifty from Mr. Watkins, but the runners were so weak, he said: "I shall not charge for them, they are so weak, and not worth it;" this was in September. The plants however were taken home and planted, being also watered and given some attention, after which they made fair crowns; but the following season not one showed a truss of fruit, but gave plenty of good strong runners, about sixty of these being layered in pots, and eventually planted alongside the parent row. Last season, practically every plant showed for fruit splendidly, and gave some very fine dishes of fruit, while this season also they are again fruiting freely. I do not notice a blind plant in the two rows. Monarch is a very good fruit of high colour, firm, good for travelling, and pleasant in flavour; it is grown here in medium to heavy soil—low, damp situation. Leader is in my opinion, a Strawberry to give greater weight of fruit from a given space of ground, than any other variety I know of. On high lying situation, light soil, with us here, it produces very fine fruit; it will easily turn two oz. each from yearling plants, and produce an abundance of them. I take it as having some trace of Monarch in the crop, but do not remember its parentage; probably "Noble" is also included. Louis Gauthier for variety is also a break away, likely to be of service for stock purposes, its colour being striking, while its size will be unobjectionable. I am sending herewith a few fruits of two-year-old plants, just ordinary cultivation, Leader and Louis Gauthier. *R. G., Whitfield.*

STRAWBERRY MONARCH.—Two years ago a friend was good enough to send me runners of half-a-dozen varieties of Strawberries, which were too small to fruit the following year. Last year runners were layered from them, and as the parent plants were in the way they were destroyed. The layers of six varieties were planted side by side, and out of forty-eight plants of Monarch, only one has flowered, but the plants are remarkably vigorous, and will remain another year on trial, although a Strawberry that will not afford a full crop the first year will not suit me, as I destroy my plants after the second year's crop is taken. The soil is cold and clammy in places, but Royal Sovereign does well in any part or position in the garden. Leader is the most miffy doer of all those that I have tried. *W. P. R., Preston.*

NYMPHÆA ALBA.—Sir H. H. Johnston's *Uganda* says that the white Water-Lily was introduced into Great Britain by the Romans. I should like to know the authority for this. I have always considered it a doubtful native, except perhaps in the extreme north, but I never before heard of its introduction by the Romans. *H. E.*

HONEY.—I have Phormium Hookeri in very fine flower. Each flower is so full of honey, that a slight touch brings down a shower. I write to know why this honey is not taken by bees or ants, as so far as I have been able to see, no insect touches it. I fancy it is the same with the honey of Melianthus, but my plant is not flowering this year. *H. E.*

PESTS OF THE GARDEN, FOREST, AND ORCHARD.—I have read with great interest the remarks of your correspondent, Mr. R. Newstead, and I personally wish to thank you and your correspondent, who has clearly and faithfully stated the case of insect ravages, and the known practical remedies, viz., Ichneumon-flies and birds. I do not know if it is possible to acclimatise Ichneumon-flies, but I think that the remarks of Mr. Newstead have made it quite plain that it is a national duty to preserve and protect the birds, on the score of utility alone, to say nothing of song and beauty. *R. Maher, The Gardens, Yattendon, Newbury.*

STRAWBERRY RUNNERS.—Strawberry growers who need many plants in pots for forcing are finding runners on ordinary fruiting breadths very late in starting; and it will be in such cases probably more than ordinarily late ere they get well established pot plants. On the other hand, those who have laid down specially a moderate breadth of plants to furnish runners, from which the bloom has been gathered, have layered largely already, and will find no delay in getting plenty of well-

rooted pot plants in due course. The diverse results show how materially exhausting to Strawberry plants is the production of flowers and fruit. Of course, such things constitute the primary reason for Strawberry culture, but to obtain specially early runners the securing of those for pot culture must be the primary consideration, and not fruit. It may be feared that breeding from plants not permitted to flower would eventually lead to barreness; but as plants to produce runners solely need not be of the earliest, it is wisest to take them from the fruiting breadths, and thus ensure the fruitfulness of their progeny. *A. D.*

THE ANEMONE, ETC.—It gave me great pleasure to read the remarks on the double-flowered Anemones. I consider them some of the most beautiful flowers when they are good, such as I used to get fifty years ago and more, from the gentleman named in these columns, viz., the late Rev. Joseph Tyso, and his son later on. I have never yet been able to get anything like them since. I used to be often there, and when in bloom used to select them for their beautiful colours, and some of the flowers were large and double. I have tried many places, but have not been able to get any such since then. They were a specialty with them, as were also Ranunculus, large beds of which formed a beautiful sight when in bloom. They grew Tulips, Carnations, &c., also some good Dahlias, not singles, but cricket-ball-like blooms, and the honeycomb ones, which are what I call Dahlias; but singles are pretty, only to disappear quickly from sight. I consider there were as good things sixty years ago as now in Roses, Dahlias, Pinks, Carnations, Picotees, &c. I am not writing as a novice, but practically. I know a little, and have forgotten a good deal, and have a great deal more to learn. *J. C.*

EREMURUS. — By the same post you will receive two photographs of a collection of Eremurus Elwesianus, and other varieties, now growing and blooming in my garden at Wansfell Holme, Windermere. As far as I remember, I commenced growing the Eremurus about three years ago, and bloomed one plant the first year, but had no bloom at all the second year, although the plants made strong and numerous suckers. Last autumn I instructed my head gardener to remove all the plants to a new and more sheltered bed, and also to divide the plants that had suckers. The site which I chose for the new bed is well sheltered from the north by large Fir-trees, and has a south and west exposure to the sun. The result has been a surprise to myself and my gardener, and the photographs will enable you to understand how well the plants have grown and bloomed. In conclusion, I may inform you that the three spikes of E. Elwesianus measure 9 ft. 6 ins., 7 ft. 6 ins., and 6 ft. 4 ins. respectively, and the E. himalaicus 4 ft. 4 ins. The actual flowers occupy 4 ft. 8 ins., 3 ft. 7 ins., 3 ft., and 1 ft. 6 ins. *O. O. Wrigley, Bridge Hall, Bury, Lancashire.* [The photographs show several spikes arising from tufts of broad leaves, and looking noble against a dark background of trees. See *Gard. Chron.*, July 9, 1881; June 30, 1900; and December 14, 1901. ED.]

BOLTING CABBAGES. — The matter of the "bolting" of Cabbages—that is, when the young plants put out in the autumn for a supply of Cabbages in early summer, instead of forming hearts, send up instead a flowering stem—is one that frequently engages a good deal of attention, and speculations have been hazarded as to the cause of this bolting. The old school of Cabbage growers—those who grew very largely for the supply of the markets—made it a point to make a sowing the first week in July, doing so in showery weather; a week later another sowing was made, and then a third sowing a week or ten days after. Hence they were able to secure an adequate supply of plants. They were very particular in selecting their plants for seed. They would go through their fields of Cabbage, and place a stake against every plant which was heart-ing-in early; they would be gone over again two or three times, and all the indifferent ones would be removed, and only the very best left as seed-producers. The hearts were eventually cut, leaving the stumps to stand, and in the autumn, when sprouts had appeared, these stumps were taken up, and replanted deeply, generally about October, leaving only the tips of the sprouts visible, and it was these sprouts which produced seed in the following summer. In this way fine stocks were produced, and bolting reduced to a minimum. Some who grow for seed take less trouble; they content themselves with sowing the seed in drills, and leave them there to produce seeds. But it is obvious this perhaps more rapid, but certainly less laborious process, could scarcely operate to secure the fine, pure, even stocks obtained by the more methodical process. *R. D.*

CEDRUS.—I see in your issue for June 14, p. 396, that admiration for the Cedrus Deodara (a graceful beauty), disparages the beauty of the Cedrus Libani, the tree that beyond any other gives impressions of majesty. Everything in its own place, is the art of arrangement. The knowledge of beauty, the power of admiration, are growths that require long loving study to bring them to maturity. When the human mind enters the worlds of beauty, and receives its first knowledge, it sees the truth of some particular beauty, and at once commences to judge others of which it has no proper conception. True admiration of anything is more or less divine. Admire a Daisy or a blade of grass, and show it to the seekers of beauty—a public benefaction is thus accomplished; but take one beauty to condemn another, and destruction of true development must be the result. The characters of the Cedars we possess, Libani, Deodara, and atlantica, are all different, and each is very valuable when exhibited to the sight in groves or avenues, Libani over hill-tops, Deodara on hill-sides, or some other of the many parts of natural undulations. The Cedar in each of its forms is very distinctive, and each possesses a beauty entirely its own, and we must not condemn any one of them, above all, certainly not the majestic Cedar of Lebanon. Dr. Bonavia calls the Cedar Deodara picturesque. It is undoubtedly a graceful tree. Nature gives many forms of gracefulness, but these seem to me to be distinctive from the picturesque. The English Oak is picturesque; the Cedrus Deodara is so life-giving, you feel quite sure it will never change, but will be always ready to fill you with its ever-changing silvery lights and shades amidst its lovely gracefulness. The picturesque character leads you direct in its never-ending romantic forms into the mysteries of infinity. *Jos. Forsyth Johnson, New York.*

PRIMULA SIEBOLDI.—I quite agree with your correspondent "R. D." (p. 328 last vol. of *Gardeners' Chronicle*) in regard to his appreciation of this plant in its many varieties, and with the remark that "sometimes P. Sieboldi fails from improper cultivation." No further word of praise is necessary, though it may be regretted that so beautiful a group is not more frequently seen in gardens in good condition, and under suitable environment, viz., shade, with more or less constant moisture. I do not agree with the method described by "R. D." to bring about success, February being described as the proper time for repotting the plants. As a matter of fact I scarcely know a worse time of the year, and would certainly look then for partial failure and immature spikes of flowers. It is true the plants start into growth in February, but quite at the end of the month, unless in a frame or cold-house, neither of these being the best place for them. In the open ground, these plants push through the soil early in March, and flower in about two months if the weather be favourable. To repot them as stated, therefore, would result in the plants flowering a few weeks later in a semi-established condition, when they would produce immature blooms; treated in this manner they would not attract attention. In consideration of their special needs, I made a sunken bed for their reception. Taking out some inches of the under stratum of soil, and slightly puddling the bottom, which was close to the gravel subsoil, returning some of the soil, then placing a heavy layer of cow-manure, and again more soil, I planted the rhizomes of these Primulas an inch or two beneath the soil, a method of planting that should always be followed, so many roots issuing from the upper surface of the rhizomes. The surface of the bed was some inches below the general ground-level. Companion plants on the same level were such moisture-loving Lilies as canadense, superbum, and pardalinum. Naturally much water found its way to these sunken beds, and the plants flowered in rich abundance, with stems 18 inches high. Not only do these plants enjoy a great deal of moisture, but a supply likewise of very rich food, and they are greatly benefited by annual manuring. I observe these plants are grown in some of the public gardens around London on beds raised above the level, with the result that the flower-stems are only about 2 or 3 inches high. In the Birmingham Botanical Gardens, many years ago, my old and esteemed friend Mr. Latham grew his plants in the wet, low-lying ground on one side of the herb garden, where the plants grew with vigour in the reddish clayey soil and abundant moisture. Mr. Latham's collection of the plants, which he grew in pots, were divided yearly a few weeks after flowering, and when repotted, they were plunged about 2 ins. deep in spent hops or some similar material. Potted in August or thereabouts, the plants have a long period in which to make roots, although they do this more or less the whole year, and are in every way better fitted for the flowering. Moreover, the cultivation of the plants in frames is unnecessary. If those who cultivate these plants indifferently would imitate the practice in vogue in the Birmingham Botanical Gardens, success would be ensured. *E. H. Jenkins, Hampton Hill.*

FUCHSIA TRIPHYLLA HYBRIDA.—To give this interesting hybrid the name of triphylla superba is regrettable, because it is not a form of triphylla. The Floral Committee did wrong to pass the plant as triphylla superba, though I am informed it was afterwards changed to hybrida. It was said that F. fulgens was the pollen parent; at the same time I expressed the opinion that it was probably F. corymbiflora. Mr. J. T. Bennett-Poë, who exhibited it, now writes to inform me that he believes (from internal evidence) "it is more like to be a cross from F. corymbosa" (query corymbiflora) "and F. triphylla than from F. fulgens, as has been stated; anyhow it is a good and beautiful thing," yet it seemed to be so moderately appreciated by the Floral Committee, that when I proposed it be awarded a First-class Certificate of Merit, which I think it well merited, I could find no seconder. *R. Dean, V.M.H.*

JUDGING GRAPES. — In reference to Mr. Kirk's remarks on my criticism on his scale and method for judging Grapes, I may inform him, as he seems incredulous of my *bona fides*, that I am a Grape grower and a fairly successful exhibitor, and was so years prior to the time Mr. Kirk made his *début* in Edinburgh some 20 or 25 years ago, so that I do not take part in a controversy on judging merely for amusement, but with a view to some practical issue. I still hold that most of the properties set apart by Mr. Kirk for separate treatment could with advantage be "lumped," in the word "finish," these are colour, finish, bloom, thinning, and size of berry, leaving out quality as represented by flavour to be dealt with independently. My contention is 1½ points as a maximum for size and symmetry of bunch is perfectly insignificant, and practically unjust among all the other attributes named, and is simply swallowed up as of no consequence. I look upon size as being of some importance, although colour, according to some people, is everything, no matter how small the sample

may be. The danger in setting up so many standards, is in one over-reaching or neutralising the other. To obtain a correct aggregate valuation, the estimate must be narrowed down to the main factors in the case, viz., size and finish, or if you like, bunch and berry, or appearance and quality. I would submit to Mr. Kirk what I consider a more equitable mode of procedure in judging Grapes, namely, allow 3 points as maximum for size, to include size of berry and form of bunch, and 3 points for finish, including colour and bloom, reducing by fractions of ¼-½ and so on as defects in the proportions arise. Another important matter to account for, is the superiority acquired by nature of certain varieties which should be classified according to their superior worth. And I am of opinion that the value of the qualities bestowed in this way should not be mixed up with details of cultural merit, but that they should stand out free, and their relative value be estimated by a scale of minute degrees appropriate to the shades of difference between them, and this is most conveniently accomplished by decimals in 10ths, 1° the maximum allowed for Muscat of Alexandria alone. I am afraid I have again got into conflict with Mr. Kirk, because he considers any Muscat equally worthy of the premier position. Mr. Kirk seems indignant that the Royal Horticultural Society's rules give ten points to Muscat of Alexandria, and only nine to his favourite Muscat Hamburgh. I am certain when the two are put together, each perfect in its way, any judge would give the first mentioned the preference, unless it be those, including Mr. Kirk himself, who have a bias for black Grapes, and seldom show anything else. It should always be a condition in a class for six varieties of Grapes that two varieties should be white, and this would oblige exhibitors generally to stage this noble Grape in all its wealth of properties for which full value would be recorded in their favour. *W. W., N. B.*

FLOWER SHOWS. — Whilst I heard some rather depreciatory remarks at the recent Holland House exhibition respecting the manner in which Messrs. Sutton & Sons had exhibited their group of Gloxinias there, the criticisms were directed more to the height of the show-case in which the plants were enclosed, and to the dwarfness of the latter, than to the method of exhibition generally. When it was seen how admirably the means adopted by the firm served to show off the truly splendid collection of Gloxinias they had, preserving to the last the flowers in such perfect freshness, the ease with which each portion of the group was seen, and the exceeding comfort afforded to visitors under the bell-tent which sheltered the flowers, I could but think that objections to the height of the show-case were of little moment. I was, apart from any such matters, very much taken with the means utilised by the firm for their own purposes, as it was undoubtedly such a relief to get from out the long, hot tents into the open air, and find under the Sutton bell-tent, with its open sides and shade, much pleasant coolness and ample room. To carry out such a method of showing trade groups in single bell-tents at the Temple Show would be for lack of space impossible: but if we have other shows at Holland Park—and I am sure all Royal Horticultural Society Fellows wish there may be many such—how pleasant would be, say, a dozen of these bell-tents with open sides in the hot day, though closed up at night, each important firm of exhibitors having its own. How much more room would thus be afforded in the long tents, keeping all exhibits to centre groups, and enabling side canvas to be dispensed with, to the great comfort of all concerned. We badly want more up-to-date ideas in relation to flower shows. *A. D.*

COUCH-GRASS.—If I may be allowed to say a few words, I should like to record my experience *re* Couch-grass, Docks, &c., and the best way to get rid of them. I must say that in my opinion Mr. Roberts' remedy, to say the least of it, is an expensive one, the purchase of Rhubarb roots making it a very serious item. Again, I would not advocate trenching, as it is open to doubt if this would prove effective, more especially as regards the Horsetail and Woodbine, which I have found at a depth of three feet below the surface, and the expensive process to get it out would hardly justify the outlay, which would cost from 2*s.* to 3*s.* a rod on medium and heavy soils. In practice I have found no crop to equal Potatos for cleaning foul land, and even then the ground should lay fallow a few months in advance. If infested with Woodbine, Nettles and Couch, I put a heavy coat of manure on the ground in the autumn, and turn it up roughly and fallow it till spring. Early in March, weather permitting, the ground is gone over with a hacker or fork, when it will be found that the mechanical action of the atmosphere and winter frosts acting on the soil pulverises it, and the heavy dressing of manure induces and keeps the Couch, Woodbine and Nettles near the surface, and they can then be got rid of without much difficulty. I should plant a second early Potato carrying a strong haulm, which is most in favour for cleaning the land. When the Potatos are well through, the ground is again lightly forked over between the crop to clean it preparatory to soiling up. There is more difficulty in dealing with Docks and Marestail, but if the old roots of the former are grubbed up, the seedlings can usually be got rid of by persistent summer hoeing, like the Woodbine. The Marestail is mostly found in swampy, damp, and undrained land, and if these uncongenial conditions are removed, with good cultivation and frequent hoeing the ground to weaken the plant, this pest will gradually die out. *J. D. Godwin.* [Our readers will be able to judge if the cost, by Mr. Godwin's methods, is not greater than those of ours; besides, Potatos do not give very good crops, or grow strongly when grown under the shade of orchard trees. Ed.]

NEW INVENTIONS.

AN AËRATED SPRAYING SYRINGE.

The Aërated Spray Syringe (*fig.* 16), is described by Mr. West, of Roundhay, Leeds, as an ordinary syringe, with an extra cylinder for holding the liquid firmly fastened to it, and is connected to the cylinder by two tubes as seen in the illustration. As all syringes are pneumatic pumps, and as the water in the cylinder is connected with the syringe in the same way as in a scent sprayer, when the plunger is worked in the syringe a strong force of air is obtained which aërates the spray in the same manner as in a scent sprayer, and gives off a fine spray. But as the syringe is larger and stronger than a scent sprayer, the syringe gives a much larger volume of spray, and it cannot get clogged; and the cylinder holds as much liquid as will last an hour or so of spraying. It can be also used as an ordinary greenhouse syringe.

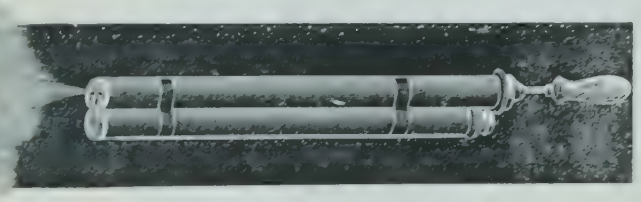

Fig. 16.—Mr. C. E. West's double-barrelled spraying syringe, for employing insecticides and mixing them with water.

COVERED WALKS.

"Nothing is more completely the child of Art than a garden," is an apothegm of Sir Walter Scott's, the truth of which no one when it was written, seventy years ago, would have cared to dispute. Now he would be accounted rash indeed who should say any such thing. Still, there are people who think as Scott did, and preferably like to take their pleasure in trim gardens, rather than in the modern creations which we call "natural." If one were inclined that way, there is a wide field for philosophising on the general trend towards old fashioned gardening, as witness the universal repute the Italian pergola has attained, though so long ago as the time of Evelyn it was known in England, but did not then become naturalised, not impossibly on account of an insufficiency of material proper for its clothing. It is by no means improbable that the same difficulty may be experienced in the more northern parts of the kingdom still, though anyone bold enough to break away from the vegetation usually employed in the South, and relying solely on a limited number of hardy, rapid-growing plants, would shortly find the nakedness, so generally conspicuous in pergolas at present, become a thing of the past.

But it is not of a feature so lately reintroduced as a pergola that I wish to write, but of a much older appendage to the garden, which has been variously known at different periods of time as an arched walk, a tonnelle, or an arbour, and in these days as a covered walk. For a long time the point aimed at was to secure a close, thick growth of vegetation, without having regard to the quality or quantity of flower or fruit produced—things essential at the present day. Apple or Pear-trees are most commonly used now, and Roses among flowers, a notable example of the latter being the long Rose-walk at Dalkeith, where it has existed for the past 150 years.

There are a few things essential to good effect, and consequent success, in the treatment of these covered walks that must be carefully considered. A short walk cannot be efficiently treated in this way, though a fairly good effect may be secured by throwing at intervals a few narrow arches across it. In the case of a long walk of say 100 to 200 yards, the chief point to consider is the relative width of the walk, and height of the construction. If the walk is too broad, a feeling of the same nature is produced in the mind as occurs with a very broad flower-border lacking appropriate length. On the other hand, a too narrow walk has no perspective, and the play of light and shade is completely lost. A walk 7 to 8 feet in width is suited to the length indicated, and the height to the ridge need not exceed 9 feet.

In furnishing covered walks, it is possible, and indeed very easy to perpetrate grave mis-

takes. As it appears to me a fundamental principle that must be observed in order to obtain really satisfactory results, is to limit the selection of varieties to the lowest point. In the case of Roses, few I daresay would be satisfied unless a variety of kinds were employed. But the kinds should possess in common, a hardy, robust growth, free-blooming properties, and an important qualification, they should be in flower all at the same time. If we select say Dundee Rambler, Félicité-Perpétue, Reine Marie de Würtemberg, and Crimson Rambler [the vigorous grower and rich bloomer Madame Despres, whose blooms come in great clusters, must not be forgotten. ED.]. Nothing could be said against these varieties, save want of concurrency in flowering, but that of itself is sufficient to call for a better timed selection.

In the case of fruit-covered walks, similarity in habit of growth, time of flowering and certainty in fruit-bearing, are all important. So much was I impressed with these points, that some years ago when called upon to furnish a long walk of this kind, I decided to use one sort only. The result I believe has amply justified so narrow a selection, and even when the trees are in the bud stage the regularity of every individual, and the similar tone of grey, especially when lightened by the midday sun, has an effect it would be impossible to secure had distinct varieties been planted. When the flowering stage is reached, the value of uniformity is of course accentuated to a much greater extent. There is no portion, side or arching top, devoid of its quota of bloom all of the same tint, and, of course, the set of fruit is equally regular throughout. Whether the season when the flowers attract attention, or that when the fruit is coming to perfection, affords the most pleasure, would be difficult to determine; personally I think the latter, but that is really not the question in view here. I might also have remarked on the lesser degree of pleasure derived from the shades of green in the young and the perfected foliage, impossible to secure where many varieties combine to make a whole. *B., Tyninghame.*

GLANDS IN TECOMA.

THE sunken gland in the Tecoma belongs to the type known as basin-glands, which are very characteristic of some genera of the family Bignoniaceæ. They are frequently found on the leaves associated with the flowers, and also on the calyx, sometimes even on the fruit. The gland is a multi-cellular outgrowth of the outermost layer, botanically speaking, a hair, in the form of a disc attached by a broad, very short stalk. These examined were dry, but a secretion is probably exuded in the healthy living plant from the cells forming the upper surface of the disc. The edges of the basin have grown over, so as partly to roof in the cavity, leaving a round central opening above the disc. The illustration (fig. 17) was taken from a specimen furnished by Mr. Lynch, of the Cambridge Botanic Garden. *A. B. R.*

TRADE NOTICE.

Mr. M. A. GIBSON, has joined Mr. James Wilson of the firm of Brown & Wilson, in place of the late Mr. J. G. Brown. Business will be carried on under the old style at 10, Market Place, Manchester. Mr. Gibson served his apprenticeship with Messrs. W. Drummond & Sons, of Stirling, coming to Manchester nearly seventeen years ago, to enter the employment of Messrs. Dickson, Brown, and Tait, where he held successively various positions, latterly that of traveller.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JULY 8.—*Present:* Dr. M. T. Masters, in the Chair; Messrs. Druery, Hooper, Saunders, Worsdell, and Elwes; Drs. Rendle and Müller, Professor Boulger, Rev. W. Wilks, and Rev. G. Henslow (Hon. Sec.).

Beech Trees with Phyllaphis.—Mr. SAUNDERS reported as follows upon the communication received from Mr. White: "The insect is Phyllaphis fagi, which infests the lower branches more than the upper. They feed on the under side of the leaves, and the honeydew which they deposit falls on the leaves below. The pest may be destroyed on a small tree by spraying the under sides of the leaves with paraffin emulsion."

Clubbing and Gas-lime.—Mr. WILKS described his unsuccessful experience with gas-lime as a remedy. Three inches in depth were dug-in last November; Cabbages were planted in March, and grew well at first, but proved to be badly affected. Mr. SAUNDERS undertook to examine the roots.

Athyrium Attacked by Grubs.—Mr. DRUERY exhibited specimens attacked by some maggot, which ate the interior of the rachis. Mr. SAUNDERS undertook to examine them.

Digitalis malformed.—Mr. HOLMES exhibited a spike in which the corollas were split and the segments antheriferous. A similar monstrosity was described by Rev. G. Henslow in *Journ. Lin. Soc.*, vol. xix., p. 216.

Pear diseased.—Mr. HOOPER showed specimens of Pears, apparently attacked by some fly, with leaves blistered by the Phytoptus pyri. Mr. Saunders reports that they are attacked by the grubs of the Pear-midge, Diplosis pyrivora. It lays its eggs among the stamens, and the grub feeds on the young fruit. The chrysalis is found about an inch below the ground. 1½ in. of soil should be pared off and burnt, or the surface-soil may be buried 5 inches deep.

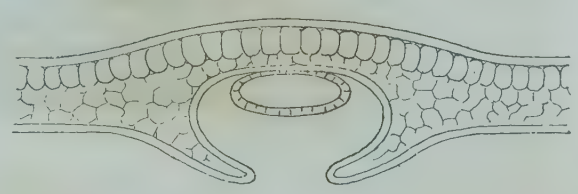

FIG. 17.—SECTION THROUGH LEAF OF TECOMA, SHOWING GLAND.

Crinum sp.—Mr. ELWES exhibited an umbel of very fine flowers, which have the perianth white, with a median crimson stripe. It came from Brazil, and it appears that Mr. GODMAN found it also in Jamaica. He suggested that it might be C. Kirkei from Zanzibar. Mr. ELWES remarked upon the wide diffusion of several African bulb plants in the last century.

Iris malformed.—Mr. C. T. B. CREWS, of Wokingham, sent a specimen with double flowers. Dr. MASTERS undertook to examine it.

Leucadendron malformed.—Mr. HENSLOW showed an inflorescence in which, instead of flowers, the peduncles were covered with bracts like the "wheat-ear" Carnation. It was from a bush growing on the flanks of Table Mountain.

Apple-leaf Blister.—In reply to Mr. H. F. GETTING'S inquiry, Dr. M. C. COOKE observed that this is as great a mystery as ever, as there is no trace of fungus. There are abnormal tufts of hairs, probably induced by minute insects. Further observations on Erineum pyrinum, a possible cause, will appear in the *Journ. Hort. Soc.*

Stameniferous Fig.—Mr. HENSLOW called attention to the variety Pingo de Mel, from Portugal, which is an exception to the rule that nearly all edible Figs are female, while this one bears stamens, though without pollen. The female flowers had globular ovaries (gall-flower), so that it appeared to be an edible variety of the Caprificus, or wild Fig, which is always infested by the minute wasp, Blastophaga grossorum.

Sycamore Fig.—Mr. HENSLOW showed specimens of this Fig, which is always infested with Sycophaga crassipes. To remove them, the Fig is cut open by a peculiar hook-shaped instrument; the process also causes the Fig to acquire great sweetness. The Figs are only cut open and eaten by the poorer classes in Egypt, but the process is the same now as described by Theophrastus in the fifth century B.C. Three forms of Fig-cutters were shown.

Apples diseased.—Mr. SAUNDERS observed on some small Apples shown, that they had been attacked by some insect, probably the Apple saw-fly, Hoplocampa testudinea. When mature, the grubs bury themselves so that not only should all the little Apples that fall naturally or when the tree is well shaken, be burnt, but the surface soil should be burnt or buried deeply. The soil should be dressed with kainit (½ lb. per square yard), between the middle and end of June, just before or after rain. If very dry, the dressing should be watered.

CHISWICK: JULY 11.—A meeting of the Fruit and Vegetable Committee was held as above. Present: Mr. H. Balderson, in the Chair; and Messrs. W. Bates, C. Wythes, G. Kelf, H. Markham, S. Mortimer, H. Esling, W. Pope, G. Marshall, and A. Dean.

The subjects examined were Peas and Lettuces. All Peas, of which there were eighty-five diverse stocks, were sown on March 14, and all had made excellent growth. Some tall ones, indeed, were exceptionally strong; this had conduced to comparative lateness in podding, and in some it was evident full fertilisation had not been perfect, as many pods of varieties that are usually so full of Peas were imperfectly filled. Owing also to the somewhat fierce wind, hail, and rain storms that have prevailed, haulm was in many cases cast to the ground; that was particularly the case with tall varieties, these needing ample staking for support during such a difficult season as the present so far has been. Many varieties have to be again seen, and the committee arranged to meet for that purpose on the 18th inst.

The following received Awards of Merit:—Dwarf Harbinger, the first appellation being added by the committee to distinguish it from an old Harbinger; 15 inches in height, and a remarkably early cropper; capital for house or frame culture, as also for warm outdoor borders. Little Marvel, 20 inches high, Peas green; a very heavy cropper. Early Giant, 4 feet high: a very fine podding and cropping variety—these were from Messrs. Sutton & Sons, Reading. The Daisy, a well-known variety, growing 20 inches high, a great cropper, and of much excellence, obtained a First-class Certificate — from Messrs. J. Carter & Co., High Holborn. Senator, a remarkably heavy cropper, pods green, long, and curved, height 3 feet, received also a First-class Certificate—sent out by Messrs. Webb & Sons, Wordsley. Western Express, 4 feet, somewhat of the type of Gradus, a fine cropper—from Messrs. R. Veitch & Sons, Exeter (Award of Merit).

A large collection of Cabbages and Cos Lettuces was seen, but none were selected as good enough for awards.

WOLVERHAMPTON FLORAL FETE.

(*Concluded from p. 27.*)

CUT ROSES.

For six varieties in trebles, some very fine blooms were staged, Messrs. B. R. CANT & SONS were 1st, and Messrs. FRANK CANT & CO., came 2nd.

With twelve bunches of Roses shown with foliage and buds, Mr. GEO. PRINCE, Oxford, was 1st with charming illustrations of this type of Rose. Messrs. FRANK CANT & CO., and Messrs. J. TOWNSEND & SON, were placed equal 2nd.

For twenty-four varieties shown in boxes, Mr. G. PRINCE was 1st with good blooms, and Messrs. PERKINS & SON, Coventry, 2nd. With twelve varieties new of 1899, 1900 and 1901, Messrs. B. R. CANT & SONS were 1st, and Messrs. FRANK CANT & CO., 2nd. With twelve blooms of one variety dark, Messrs. B. R. CANT & SONS were 1st. In the class for twelve blooms of a light Rose, Messrs. TOWNSEND & SON were 1st with Bessie Brown.

Other cut flowers comprised a class in which pots as well as blooms of decorative plants could be shown. Mr. W. FINCH was 1st; and Mr. G. HANCO, West Bromwich, 2nd.

FRUIT.

The best four bunches of Grapes, two white and two black, came from Mr. Doe, gr. to Lord SAVILLE, Ollerton, who had Black Hamburgh, Madresfield Court, White Muscat, and Foster's Seedling, all good. Mr. BARKER, whose full address was not forthcoming, came 2nd; Mr. Read, gr. to Earl CARNARVON, Bretby, was 3rd.

Mr. DOE had the best two bunches of White Grapes, having fine and well-finished White Muscat; Mr. R. Lawley, gr. to Mrs. DALBY, Baschurch, was 2nd with the same.

With two bunches of Black Grapes, Mr. R. Lawley, gr. to Lord TREVOR, Chirk, was 1st, with well-finished Black Hamburgh; Mr. DOE coming 2nd with Madresfield Court.

Melons were shown in two classes.

Mr. T. BANNERMAN, The Gardens, Blithfield, Rugely, was 1st with a dish of Royal George Peaches; Mr. W. L. BASTIN, The Gardens, Buscot Park, was 2nd, with an unnamed variety.

Mr. J. READ had the best dish of Nectarines, in Lord Napier. There was no competition in Strawberries.

Tomatos were shown in collections of three varieties, Mr. J. READ taking the 1st prize.

There were six collections of eight dishes of fruits, Mr. J. Dok taking the 1st prize with a well-balanced collection consisting of Muscat of Alexandria and Madresfield Court Grapes, Barrington and Early Crawford Peaches, Violette Hâtive Nectarine, Figs, Melon, and Strawberries. Mr. J. H. Goodacre, Elvaston Castle Gardens, was 2nd; he had Black Hamburgh and White Muscat Grapes, Bellegarde Peaches, Lord Napier and Spencer Nectarines, Figs, &c. Mr. R. Dawes, gr. to Mrs. Meynell-Ingram, Leeds, was 3rd.

Vegetables

were finely shown in competition for the special prizes offered by Messrs. Sutton & Sons and Messrs. E. Webb & Sons, but at the time of our representative leaving the show, the winners names had not been declared.

Miscellaneous Exhibits.

These were numerous and varied. Gold Medals were awarded to Messrs. Dobbie & Co., nurserymen, Rothesay, for a collection of Sweet Peas, Fancy Pansies, Violas, &c.; to Messrs. Veitch & Sons, Chelsea, for a group of plants; to Messrs. R. Smith & Co., Worcester, for the same; to Messrs. E. Webb & Sons, Stourbridge, for Gloxinias, Hardy Flowers, &c.; to Mr. Henry Eckford, Wem, for a collection of 100 bunches of Sweet Peas; to Messrs. Hill & Co., Edmonton, London, for a collection of Ferns; to Mr. L. J. Ching, Enfield, for the same; and to Mr. John Forbes, nurseryman, Hawick, for Pentstemons, Phloxes, &c.

Silver Medals were awarded to Messrs. Jones & Son, Shrewsbury, for Sweet Peas; Messrs. Jarman & Co. Chard, for cut flowers; Mr. R. Sydenham, for Carnations and Sweet Peas; Messrs. Dicksons, Ltd., Chester, for cut flowers; to Messrs. G. Jackman & Son, Woking, for cut flowers; to Messrs. Blackmore & Langdon, Bath, for Begonias of very fine quality, which deserved a Gold Medal; to Messrs. Hewitt & Co., Solihull, for cut flowers; and to Mr. R. Lowe, Wolverhampton, for plants, cut flowers, &c.

DUTCH HORTICULTURAL AND BOTANICAL SOCIETY.

At the Floral Committee meeting of June, 1902, the Committee awarded First-class Certificates to Messrs. Kasen van Ommeren, Hees, for Pteris Schoonhorsti; to Mr. P. W. Voet, Overveen, near Haarlem, for Eremurus robustus superbus (Himalaicus robustus), as a new plant.

Certificates of Merit were granted to Mr. W. van Veen, Leiden, for Delphinium formosum cœlestinum; to Mr. C. J. Kikkert, Haarlem, for Odontoglossum crispum Trianæi, as fine varieties.

Botanical Certificate to Mr. P. W. Voet, Overveen, near Haarlem, for Iris urmiensis, as a new plant.

Honourable Mention to Mr. M. Buysman, Middleburg, for a copy of a new herbarium.

LINNEAN.

June 19.—W. Carruthers, F.R.S., Vice-President, in the Chair.

Mr. George Massee, F.L.S., described some of the results of modern methods of investigation in mycology, illustrating his remarks by means of lantern slides. He pointed out the errors of some observers who urged the suppression of genera wholesale on the evidence of a few species, and pleaded for the retention of familiar names until a clear case for their suppression had been established on evidence furnished by pure cultures. He instanced the succession of generic forms in orderly development from Verticillaria Solani, through Fusarium Solani and Cephalosporium to Nectria Solani, which, with its resting-spores, closes the cycle of seasonal growth. He pointed out the difficulty of culture in the matter of parasitic species, a difficulty which might in the future be overcome, cultures hitherto having necessarily been confined to saprophytic species which are capable of growth in nutrient media.

THE HORTICULTURAL CLUB.

July 8.—On the occasion of the monthly dinner of this Club, which took place at the Windsor Hotel, Victoria Street, Westminster, on the above date, there was undoubtedly one of the most interesting and at the same time practical *réunions* in the horticultural interests which the Club can record. Mr. Harry Veitch, in the absence of Sir John Llewelyn, the President, occupied the Chair, and some thirty odd members and guests were present; the guest of the evening being Mr. H. M. Arderne, now on a visit from Cape Colony, where he is the happy possessor of a garden which, by the description and photographs displayed, appears to represent a veritable paradise for flower and tree-lovers; if not, as one enthusiastic visitor thereto opined, the actual Garden of Eden itself a little out of its local location. In 1840, however, a comparatively recent date clashing with this opinion, this at present lovely domain was rough bush land of little attractiveness in itself, but with cautions and suggestions in the landscape line, enhanced to an enormous degree by the immediate vicinity of Table Mountain itself, which inspired Mr. Arderne's father in the first place to improve it, and himself in the second to bring it to its existing state of perfection.

As Mr. Arderne's paper, which gives the names of the more striking tree and plant features shown in the photographs, some of which were panoramic, will appear in full in the *Journal of the Royal Horticultural Society*, we may here, despite the attractiveness of this part of the entertainment, yield to the exigencies of space, and touch rather upon the economical points raised by the paper, and discussed subsequent to its reading. Mr. Arderne, although the guest of the evening, was not the only one; Prof. Henslow also was present, after a four months' sojourn at the Cape; and our Canadian colonies were hospitably entertained in the person of Mr. McKinnon, who represented official agriculture in that country. These gentlemen took a prominent part in the discussion, as also did the Rev. W. Wilks, Mr. Elwes, Mr. Garcia, and Mr. Monro, each representing different but very practical phases of horticultural and pomological experience. Prof. Henslow, in the course of his remarks, called attention to the peculiar adaptation of Cape plants to withstand the drought to which they were mostly exposed; and following an enquiry by Mr. Elwes, as to the spread of imported plants, referred particularly to the singular case of Oxalis cernua, a plant not known to seed at all, multiplying only by root-bulblets; and yet two or three bulbs planted at Malta in 1804 have succeeded in invading the entire Mediterranean region. Mr. Elwes in this connection, stated that in many parts of Chili he had observed that English trees had obtained such a foothold as to give an utterly misleading appearance, as regards locality, to the landscape; and Mr. Arderne confirmed this phenomenon as happening at the Cape also.

Perhaps the practical part of the discussion was evoked by a remark of Mr. Wilks anent the comparative unfitness of the William's Pear to stand long journeys unimpaired in quality, and the greater adaptability to export conditions of other varieties, such as the Winter Nelis, and other cited descriptions. This led to a general consideration of the foreign fruit question, with special reference to the opening now presented to the establishment of tranquility at the Cape for improving the methods of fruit culture in that extremely favourable climate, and thus adding another great British colonial source of fruit supply to the world. So far it would appear that, with some few exceptions cited by Mr. Arderne, the arts of fruit culture, as it were, such as the skilful thinning out of Grapes and careful selection and improvement of kinds, were practically ignored, to the great detriment of the ultimate results; while, given this more careful treatment, it was abundantly manifest by the description given, that splendid crops of high-class fruit could be obtained, much of which would be exportable if the various kinds were selected in harmony with Mr. Wilks' suggestion, viz., such as are suitable not merely for British demand, but also for transport without deterioration. As a side issue to this, the Canadian trade was discussed, and also that of California, to which last-named district the question of suitable kinds applies with special force, there being apparently too blind an adherence to precedent in the planting of new and often vast orchards. The entire discussion was so replete with sound practical suggestions, that it would be highly desirable that the pith of it should appear as an addendum in the Society's *Journal*, to the invaluable paper which evoked it. In any case fresh evidence is afforded that the Horticultural Club is not merely a social centre for the craft, but is also of great practical service in bringing good men together. *C. T. D.*

LOUGHBOROUGH AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

July 9.—The members and friends of this Association, to the number of sixty, participated in the annual excursion on the above date, travelling to Chatsworth. Rowsley Station was reached at 11.20 A.M., where vehicles were awaiting their arrival. Chatsworth was reached about 1 P.M., and parties of about thirty persons were admitted at intervals of a few minutes, and conducted by "lady guides" through the State apartments, objects of art, paintings, &c., being noted and referred to. In the gardens the visitors were met by the gardeners, and conducted through the "corridor," and through the Orchid and plant-houses, including the fine collection of Orchids in the tropical conservatory. It came on to rain about this time, and the proposed visit to the kitchen gardens had to be abandoned.

IPSWICH AND EAST OF ENGLAND HORTICULTURAL.

July 9.—The above society held its annual summer show in the grounds of the Upper Arboretum, Ipswich. The number of entries showed an increase of nearly 100 compared with last year, the figures being 1901, 451; this year, 543.

In the open division, Mr. R. C. Notcutt, Woodbridge, secured the 1st prize for a group of plants arranged for effect; and Messrs. B. R. Cant, Colchester, were 1st with thirty-six Roses, staging good specimens of Countess of Rosebery, Mrs. Ed. Mawley, Charles Lefebvre, and Ben Cant. The same firm was also 1st in the classes for twelve distinct Roses, three blooms of each; twelve Roses, one of each variety; and six Roses, one variety, showing in the latter class Suzanne-Marie Rodocanachi. Garden Roses were well shown by Mr. R. C. Notcutt of Woodbridge, who took the premier prize for these. Herbaceous flowers were also shown well, Mr. C. Jacobi, Henley Road, Ipswich, being 1st with Scabiosa caucasica, Gladioli, Delphiniums, Potentillas, Œnothera speciosa, and many other well grown species.

In the amateurs' classes, the Rev. A. Foster-Melliar won many prizes; and the Rev. Hugh Berners, of Harkstead Rectory, was very successful.

The classes for table decorations were well contested, the open class being won by Miss A. F. Harwood, Colchester.

Vegetables.—In the collections grown from seeds obtained exclusively from various well-known firms, the produce was very fine. Messrs. Sutton's Prize went to the Earl of Sandwich, Hinchingbroke (gr., Mr. J. Barson); the Hon. W. Lowther and C. H. Berners, Esq., being respectively 2nd and 3rd. Messrs. Webb & Sons' Prize was awarded to C. H. Berners, Esq., Woolverstone Park (gr., Mr. W. Messenger); that of Messrs. Fred Smith & Co., Woodbridge, to the Hon. W. Lowther. Mr. R. C. Notcutt's Prize went to Rt. Hon. Jas. Round, Esq., Colchester.

Fruit.—The exhibits were very satisfactory. C. H. Berners, Esq., was 1st for a collection, showing Foster's Seedling and Black Hamburgh Grapes, Brown Turkey Figs, Nectarines, and Peaches. C. H. Berner Esq., also won 1st prizes for Black and for White Grapes. Peaches were shown best by the Hon. Lowther, and Nectarines by C. H. Berners, Esq.

Among non-competitive exhibits, Messrs. W. Cutbush & Sons, Highgate, staged Carnations, and the new Anemone-flowered Marguerite.

Mr. R. C. Notcutt staged a nice little group of Arctotis grandis and Kochia scoparia.

Messrs. Thompson & Morgan, the well-known importers of plants, sent a collection of herbaceous flowers; and a similar exhibit came from Messrs. Fred Smith & Co., Woodbridge.

MIDLAND CARNATION & PICOTEE.

July 10.—At a meeting on the above date the committee decided, on account of the lateness of the season, to postpone the exhibition till Thursday and Friday, August 7 and 8 (instead of the original dates, Wednesday and Thursday, July 30 and 31).

WOODBRIDGE HORTICULTURAL.

July 10.—The fifty-first annual exhibition was held in the Abbey grounds, and the display was, beyond question, one of the best that this East Anglian fixture has brought together. Every department was filled with meritorious exhibits, including Roses, Sweet Peas, plants in pots, fruits, and vegetables.

In the class for thirty-six Roses, distinct, Messrs. B. R. Cant & Sons, Colchester, were 1st, and thus won the 25 guinea Silver Cup which goes with the premier prize. The blooms were fresh and of good size, and included amongst others Caroline Testout, Suzanne-Marie Rodocanachi, Le Havre, Xavier Olibo, Dupuy Jamain, &c. Messrs. D. Prior & Son were 2nd; and Messrs. F. Cant & Co., Braiswick Nursery, Colchester, 3rd.

For twenty-four, distinct, Messrs. F. Cant & Co. were 1st.

Messrs. B. R. Cant & Sons re-assumed the lead for twelve blooms, distinct; Messrs. D. Prior & Son were 2nd.

Messrs. F. Cant & Co. were 1st for a group of miscellaneous Roses with a beautiful collection.

In the Rose section open to all amateurs, Mr. Osmund G. Orpen, West Bergholt, Colchester, and the Rev. A. Foster-Melliar, Sproughton Rectory, Ipswich, divided the honours, but scarcely showed up to their usual excellent standard. The local Rose classes were fairly well contested, and included some fine blooms.

Plants in pots were numerous, and in some cases very fine culture was represented. J. A. Burness, Esq. (gr., Mr. King), had splendid Gloxinias, as had General Farren (gr., Mr. H. Martin). Mr. King was the only exhibitor in the group class, and received the 1st prize.

The same exhibitor won for a group of tuberous-rooted Begonias, having magnificent blooms. Mr. H. Martin was 2nd in this class, but 1st in those for single and double Begonias.

Mr. E. Jacobi was 1st for thirty-six bunches of hardy flowers.

Mr. E. Johnson was easily 1st for fifteen bunches of Sweet Peas, distinct.

About a score of classes was devoted to fruit. In the class for a collection of eight kinds, Pines excluded, C. H. Berners, Esq., Woolverstone Park, Ipswich (gr., Mr. Messenger), was easily 1st, with Grapes Foster's Seedling and Black Hamburgh, Strawberry Leader, Fig Brown Turkey, Melon Ne Plus Ultra, Peach Dymond, Nectarine Pineapple, and Cherry Black Tartarian. The Earl of Sandwich, Hinchingbroke, Huntingdon (gr., Mr. J. Barson), was 2nd.

Mr. Messenger was 1st for two bunches black, and two bunches white Grapes, with Black Hamburgh and Foster's Seedling. F. Garnett, Esq. (gr., Mr. Bridges), was 2nd. The positions were reversed for two bunches

White Grapes. Mr. BARRETT staged Muscat of Alexandria, and Mr. MESSENGER had Foster's Seedling.

The last-named won the black Grape class with fine Black Hamburgh.

Vegetables were numerous and of average quality.

In the non-competitive portion of the exhibition the exhibits were beautiful. LORD RENDLESHAM (gr., Mr. Rogers), had a group of Malmaison Carnations; Messrs. CUTBUSH & SONS, Highgate, staged superb Carnations; HOBBIES, Ltd., Dereham, had beautiful Sweet Peas and Roses; Mr. R. C. NOTCUTT, Woodbridge, herbaceous flowers and greenhouse plants; Messrs. DANIELS BROS., Ltd., Norwich, Sweet Peas and Carnations; and Messrs. THOMPSON & MORGAN, Ipswich, and A. W. WADE, Colchester, hardy flowers.

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

JULY 14.—The usual monthly committee meeting of this society was held at the Caledonian Hotel, Adelphi Terrace, Strand, W.C., on the above date, Mr. C. H. Curtis, in the chair. After the minutes of the last meeting were read and signed, four new members were elected. The death of a member was reported, and the amount standing to his credit in the ledger was granted to his nominee. A request for assistance from the convalescent fund, was granted to a member who has been ill a long time. Four members were reported on the sick fund.

NATIONAL SWEET PEA.

JULY 15, 16.—The second annual exhibition of the National Sweet Pea Society was held at the Royal Aquarium, Westminster, on Tuesday and Wednesday last. The schedule was much the same as that of last year, except that there were several additional classes reserved exclusively for gardeners and amateurs. There were open classes for collections of thirty-six bunches, distinct; twenty-four bunches, and twelve bunches, and similar classes for amateurs, with additional ones for nine bunches and six bunches. In all of the above classes the prizes were given by different firms of seedsmen.

The Society's classes included one each for the principal colours, with a view to showing what are the best two varieties of a particular colour; and others showing the best methods of employing the flower in decoration, whether for the dinner-table, or for baskets, bouquets, buttonholes, &c. In a class for six pots of Cupid Sweet Peas, there was no exhibit.

At the dinner to the judges and friends, Mr. GEO. GORDON, who presided, said that the Society met with considerable opposition at its inception, but they were determined to carry forward its objects.

Mr. HORACE J. WRIGHT is the general secretary, but the details of the exhibition were under the management of Mr. RICHARD DEAN.

The number of entries was greater than last year, but many exhibitors were unable to bring forward their exhibits. Upon the whole, we thought the flowers were smaller than were shown last year, or at the Crystal Palace exhibition in 1900.

Mr. W. J. SIMPSON, of the Grange Gardens, Surrey who won the 1st prize in the principal class last year, and has written on several occasions in these columns upon "Select Varieties of Sweet Peas," was again the most successful exhibitor of thirty-six bunches.

One of the objects of the Classification Committee of the Society is to encourage efforts to obtain "perfectly distinct new colours, such as approaching the blue of Salvia patens, the yellow of Coreopsis grandiflora, or the scarlet of the zonal Pelargonium."

No advance in these directions appeared at the recent show, and we are not aware that anyone has crossed the perennial Lathyrus with the Sweet Pea in order to obtain a Sweet Pea that will bear a greater number of flowers upon a spike, but many attempts have been made to do this.

The Classification Committee awarded a Certificate to a new white Sweet Pea, that may best be described as a "White Miss Willmott" The variety is already in the hands of several nurserymen, under the names, Dorothy Eckford, White Wings, Lily, and White Queen, &c. There is little doubt that this splendid white variety originated with Mr. Eckford, at Wem. The name it will bear, has yet to be settled.

The attendance upon both days was poor.

OPEN TO ALL.

Thirty six bunches of Sweet Peas, distinct.—The 1st prize was won by a collection from Mr. W. J. Simpson, gr. to R. C. FOSTER, Esq., The Grange, Sutton, Surrey, whose flowers were very clean and fresh looking, and were arranged with taste. Amongst the varieties in this exhibit we noticed Salopian, crimson; Black Knight, Triumph, pink and white; Prince Edward of York, rich rose; Prince of Wales," similar to the last, but a little deeper in colour; Princess of Wales, a striped Pea, blue and white; Queen Victoria, very pale lemon coloured; Countess of Radnor, blue with shade of violet; Lovely, pale pink colour; Emily Eckford, rich blue colour; Miss Willmott, a fine flower of rich salmon-rose colour, which is apparently less variable than some other varieties; Monarch, purple; Gorgeous, Lord Rosebery, the much-admired Lady Grisel Hamilton, of the palest blue colour. Blanche Burpee was the best of four white varieties in the stand. 2nd, Messrs. JONES & SONS, florists, Shrewsbury; 3rd, Mr. LEONARD BROWN, florist, Brentwood, Essex; 4th, Messrs. F. SMITH & CO., Woodbridge, Suffolk.

Twenty-four bunches, distinct.—Messrs. ISAAC HOUSE & SON, nurserymen, Westbury-on-Trym, were the winners of the 1st prize in this class, and arranged their flowers with sprays of Gypsophila; 2nd, Messrs. JONES & SONS, Shrewsbury; 3rd, Mr. LEONARD BROWN, Brentwood, Essex.

Twelve bunches of Sweet Peas distinct.—Messrs. JONES & SONS, Shrewsbury, won 1st prize, staging the following varieties, Jeannie, Prince of Wales, Miss Willmott, New Countess, Hon. Mrs. Kenyon, Mars, Black Knight, Venus, Pink Friar, Baden Powell, and Duke of Westminster; Messrs. I. HOUSE & SONS were 2nd; and Mr. CHAS. W. BREADMORE, 120, High Street, Winchester, 3rd.

TRADE EXCLUDED.

The best collection of thirty-six bunches distinct, shown by a gardener or amateur, came from Mr. F. J Clark, gr. to MARK FRITH, Esq., Wistow Hall, Leicester. He was followed by Mr. F. ACKLAND, Hapsford House Gardens, Frome, Somerset, and others.

The 1st prize collection of twelve bunches was shown by the Rev. L. KNIGHT-SMITH, Brightstone, Isle of Wight; and Mr. F. J. CLARK was 2nd.

Twelve bunches of Sweet Peas.—The winning collection came from Mr. Silas Cole, gr. to the Right Hon. Earl SPENCER, K.G., Althorp Park, Northampton, who had the following varieties: Miss Willmott, Queen Victoria, Lady Grisel Hamilton, Mars, Emily Ecktord, Countess Spencer, Stanley, Hon. Mrs. Kenyon, Prince of Wales, Triumph, Coccinea, and Sadie Burpee; 2nd, Mr. G. Hughes, gr. to H. T. NICHOLS, Esq., Farleigh House, Surbiton Road, Kingston.

Nine bunches distinct.—1st, H. A. NEEDS, Esq., showing Sadie Burpee, Duke of Wellington, Miss Willmott, Hon. Mrs. E. Kenyon, Jeannie Gordon, Stanley, George Gordon, Emily Eckford, Prince Edward of York, Mrs. Fitzgerald, and Salopian. 2nd, Mr. ERNEST BECK, Sherborne House, Hoddesden.

Six bunches distinct.—1st, Mr. Silas Cole, gr. to the Rt. Hon. Earl SPENCER, K.G., Althorp Park, Northampton. He had Salopian, Emily Eckford, Prince Edward of York, Blanche Burpee, Countess Spencer, and Countess of Lathom. These flowers were extremely good, and compared favourably with any in the show; 2nd, Rev. L. KNIGHT-SMITH, Brightstone, Isle of Wight, having the following four varieties not shown in the 1st prize collection, Jeannie Gordon, Lady Grisel Hamilton, Golden Gleam, and Hon. F. Bouverie.

TWO VARIETIES OF CERTAIN COLOURS (OPEN).

The best scarlet or crimson varieties were, Mars and Salopian, shown by Mr. CHAS. W. BREADMORE; 2nd, Mr. GEO. CRAFT, Park House Gardens, Addlestone, Surrey, with the same varieties.

The best yellow or buff coloured varieties were, Hon. Mrs. E. Kenyon and Lady Mary Ormesby Gore.

Prima Donna and Countess Spencer won 1st prize for the best pink varieties, Lord Rosebery and Jeannie Gordon for the best rose coloured, Burpee's New Countess and Lady Grisel Hamilton for the best mauve coloured, Emily Eckford and Captain of the Blues for the best blue varieties, Sadie Burpee and Lily (new) for the best white, and America and Princess of Wales for the best striped varieties.

The best two vases of everlasting Peas were shown by Miss ADELAIDE F. HARWOOD, 16, St. Peter's Street, Colchester; and Mr. RICHARD DEAN, Ealing, was 2nd.

FLORAL DECORATIONS.

There were two classes for decoration of Sweet Peas for the dinner-table on a space of 6 feet by 3 feet, any appropriate foliage being permissible as an adjunct. The first class, in which members of the trade could not exhibit, was won by H. A. NEEDS, Esq., Heath View, Horsell, Woking; and the second (open) by Mr. D. B. CRANE, Woodview Terrace, Archway Road, Highgate, N.

NON-COMPETITIVE EXHIBITS.

The following medals were awarded to honorary exhibits of Sweet Peas and other flowers:—A Large Gold Medal to Messrs. Dobbie & Co., Rothesay; a Gold Medal to Hobbies', Ltd., Dereham, Norfolk, and to Mr H. J. Jones, Ryecroft Nurseries, Lewisham. Silver gilt Medal to Messrs. Jones & Sons, Shrewsbury; and Silver Medals to Messrs. I. House & Son; E. W. King & Co., Coggeshall; J. Peed & Sons, West Norwood; Mr. Williams, Ealing; and Messrs. G. Stark & Son, Great Ryburgh, Norfolk.

STOCK-TAKING FOR JUNE.

WE have to record a falling off on imports to the amount of £1,045,723 as compared with June, 1901. Among the items showing increase are articles of food and drink duty free, manufactured articles, and miscellaneous articles. The figures from the summary table are as follows:

IMPORTS.	1901.	1902.	Difference.
	£	£	£
Total value ...	41,711,038	40,665,315	—1,045,723
(A.) Articles of food and drink—duty free	8,214,418	8,586,044	+371,626
(B.) Articles of food & drink—dutiable	8,519,894	8,298,015	—221,879
Raw materials for textile manufactures	5,529,694	4,713,733	—815,961
Raw materials for sundry industries and manufactures	5,671,081	5,206,313	—464,768
(A.) Miscellaneous articles	1,310,586	1,332,635	+52,049
(B.) Parcel Post ...	78,767	59,101	—19,666

In the figures relating to the imports of fruits, roots, and vegetables, the reader may find some corroboration of the weather reports of late days, though these are not so valuable nowadays in connection with foreign imports. The figures are as follows:—

IMPORTS.	1901.	1902.	Difference.
Fruits, raw:—	Cwt.	Cwt.	Cwt.
Apples	24,014	35,747	+11,725
Apricots and Peaches	2,073	2,543	+470
Bananas... bunches	197,413	224,182	+26,769
Cherries	124,467	55,501	—68,966
Currants	4,990	3,027	—1,963
Gooseberries	14,827	11,427	—3,400
Grapes	689	1,136	+447
Lemons	103,393	83,188	—20,205
Nuts—Almonds ...	2,424	3,169	+745
Others, used as food	53,965	51,895	—2,070
Oranges...	182,577	339,592	+205,851
Pears	983	56	—927
Plums	25	998	+973
Strawberries	28,304	22,022	—6,282
Unenumerated, raw...	11,297	4,954	—6,343
Fruits, dried—			
Currants, for home consumption ...	26,429	38,295	+11,886
Raisins ,, ...	12,388	15,036	+2,648
Vegetables, raw:—			
Onions ... ...bush.	182,583	165,558	—17,025
Potatos ... ... cwt.	1,750,064	1,536,142	—33,921
Tomatos... ... ,,	101,738	136,262	+35,524
Vegetables, raw, unenumerated ...value	£45,322	£47,874	+£2,542

We may add that the figures for the six months show the trifling increase in imports of £323,298. A few words respecting the—

EXPORTS

will be of interest. The figures for the past month are £21,252,383 against £22,444,424 for June, 1891—a decrease of some £1,192,041. The losses are principally with yarns and textile fabrics, raw materials, metals, and articles manufactured therefrom (ships being down £29,288), and articles partly or wholly manufactured. The figures for the past six months are £135,375,574 against £138,580,398—a decrease of £3,204,824.

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period July 6 to July 12, 1902. Height above sea-level 24 feet.

1902. July 6 to July 12.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 6	E.S.E.	67·9	62·6	79·3	58·9	...	63·9	60·2	58·8	52·5
Mon. 7	E.S.E.	72·9	66·0	80·2	57·0	...	64·5	61·0	56·8	46·3
Tues. 8	S.	74·9	60·9	82·5	56·2	...	64·5	61·4	56·9	42·2
Wed. 9	W.S.W.	65·2	61·6	72·2	59·5	0·21	65·1	61·8	57·0	48·9
Thu. 10	S.W.	59·9	54·6	65·2	52·2	0·52	64·0	61·5	57·2	40·0
Fri. 11	N.W.	53·9	50·4	63·4	50·5	...	60·4	60·8	57·2	40·0
Sat. 12	W.N.W.	59·9	51·9	70·3	41·8	...	59·2	60·2	57·2	29·7
Means	...	65·4	58·3	73·2	53·7	Tot 0·73	63·1	61·0	57·0	42·8

Remarks.—The first part of the week was very warm. Thunderstorms occurred on the 9th and 10th, since which time the weather has been dull and cool.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending July 12, is furnished from the Meteorological Office :—

"The *weather* during this week was generally fair over the Kingdom as a whole, but rain was of frequent occurrence over the extreme western coasts of Ireland and Scotland, and was also experienced over the other parts of our islands on Wednesday and Thursday. On the latter day sharp thunderstorms occurred over the central, eastern, and southern parts of England.

"The *temperature* was high during the earlier days of the period, but fell quickly towards its close, so that the average for the week did not, as a rule, differ very materially from the mean. In Scotland, however, it was 2° or 3° below, and in England, S. 2° above the normal. The highest of the maxima (recorded on Sunday over Ireland and Scotland, and on Tuesday over England) ranged from 85° in England, S., 83° in the Channel Islands, and 80° or above in most English districts, to 69° or 68° in Scotland, W. and N. The lowest of the minima were mostly registered on Saturday, and ranged from 37° in the Midland Counties, to 43° in Ireland, S., and 45° in the Channel Islands. Thermometers exposed on the grass descended as low as 32·2 at Cheadle, 30·0 at Harrogate, and 29·2 at Cullompton.

"The *rainfall* exceeded the mean in Scotland, N. and W., and in Ireland, N., and just equalled it in Scotland, E. and England, E., but elsewhere the fall was deficient.

"The *bright sunshine* was in excess of the mean in all the more southern districts of England, but showed a deficit in nearly all other parts of the Kingdom. The percentage of the possible duration ranged from 72 in the Channel Islands, 68 in England, S., 58 in England, S.W., and 48 in England, E., to 23 in Ireland, N., 22 in England, N.E., 20 in Scotland, E., and to 8 in Scotland, N.

THE WEATHER IN WEST HERTS.

WITH the exception of five cool days the weather for more than three weeks has continued unusually warm, and on five days during that period the temperature in the thermometer-screen has risen above 80°. The hottest day was the 14th, when the reading rose to 84° the highest of the year as yet. There, however, occurred one very cold night, that preceding the 12th, when the exposed thermometer fell to within 2° of the freezing-point. The range in temperature was on several occasions unusually large, and on one day the difference between the lowest and highest readings in shade amounted to as much as 35°. At the present time the ground is about 2° warmer at 2 feet deep, and about 5° warmer at 1 foot deep, than is seasonable. No rain has fallen since the 10th, and only three-quarters of an inch during the whole of the last four weeks—or not much more than a third of the average quantity for that period. No rain-water whatever has come through the bare soil percolation gauge for nearly a fortnight, and none through that covered with short grass for three weeks. The record of bright sunshine was very good during the week, amounting on an average to about eight and a quarter hours a day. The last five days of the week have been very calm, the mean rate of movement on the 14th being only about a mile an hour. Since the 11th the atmosphere has been singularly dry, the relative amount of humidity in the air at 3 o'clock in the afternoon being 36 per cent.—complete saturation being taken as 100. On the afternoon of the 15th the difference between the readings of an ordinary thermometer and one with its bulb kept constantly moist amounted to nearly 23°. Only once during the last seventeen years has as great a difference as this been recorded here. *E. M., Berkhamsted, July* 15, 1902.

MARKETS.

COVENT GARDEN, *July* 10.

PLANTS IN POTS, &c.—AVERAGE WHOLESALE PRICES.

	s.d. s.d.
Adiantums, per dozen	6 0- 9 0
Arbor Vitæ, per dozen	6 0-36 0
Aspidistras, per dozen	18 0-36 0
Calceolarias, per dozen	4 0- 6 0
Coleus, per dozen	4 0- 6 0
Coreopsis, per dozen	4 0- 6 0
Crassula, per doz.	6 0-12 0
Crotons, per doz.	18 0-30 0
Dracænas, var., per dozen	12 0-30 0
Euonymus, vars., per dozen	6 0-18 0
Evergreens, vars., per dozen	4 0-18 0
Ferns in variety, per dozen	4 0-30 0
Ficus elastica, per dozen	9 0-24 0
Fuchsias, per doz.	3 0- 6 0
Heliotrope, doz.	4 0- 6 0
Herbaceous and perennial plants in var., per box	1 0- 1 6
Hydrangeas, per dozen	6 0-60 0
Ivy Pelargoniums, per dozen	3 0- 6 0
Lilium Harrisi, per dozen	4 0- 8 0
Lobelias, per box	1 0- 1 6
Marguerites, per dozen	4 0- 6 0
— Etoile d'Or, per dozen	4 0-15 0
Mignonette, p. doz.	4 0- 6 0
Musk, per dozen	3 0- 4 0
Nasturtium, doz.	3 0- 4 0
Palms, various, each	1 0-20 0
Pelargoniums, scarlet	4 0- 8 0
— pink	4 0- 8 0
— white	4 0- 6 0
Petunias, per doz.	3 0- 4 0
Pteris tremula, per dozen	4 0-12 0
— Wimsetti, per dozen	4 0-12 0
— Major, p. doz.	4 0-12 0
Pyrethrum, double yellow, per doz.	4 0- 6 0
Rhodanthe Manglesii, per doz.	3 0- 4 0
Roses, various, per dozen	9 0-24 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d. s.d.
Artichokes, Globe, per dozen	1 6- 2 0
Beans, dwf., house, per lb.	1 0 —
— — Channel Islands	0 10-1 0
— Broad, per bushel	2 6 —
Beetroots, per dozen	2 6 —
Cabbage, p. tally	3 0- 5 0
Carrots, per doz. bunches	0 9- 1 0
Cauliflowers, per dozen	1 6- 3 0
Celery, per bundle	1 6 —
Cress, per dozen punnets	1 3 —
Cucumbers, per dozen	2 0- 4 0
Endive, new French, p. doz.	1 3 —
Horseradish, foreign, p. bunch	2 0 2 6
Leeks, 12 bunches	1 6- 2 0
Lettuces, Cos, per score	0 6- 1 6
— Cabbage, per dozen	0 4- 0 6
Marrows, Vegetable, dozen	2 6- 3 6
Mint, per bunch	0 2- 0 3
Mushrooms, house, per lb.	1 6 —
Onions, new, green, doz. bunches	2 6- 4 0
— foreign, case	6 0- 8 0
— picklers, per sieve	3 6 —
Parsley, per doz. bunches	1 6- 2 0
— sieve	0 6- 1 0
Peas, English, per bushel	1 3- 2 6
— bag	2 6- 4 0
Potatoes, new, per cwt.	6 6 —
— Jersey Kidneys, per cwt.	6 6 —
Radishes, p. doz. bunches	0 9- 1 0
Salad, small, punnets, per doz.	1 3 —
Shallots, per dozen	0 3 —
Spinach, English, bushel	2 6- 3 0
Tomatos, English, per doz. lb.	5 0- 6 0
— Channel Ilds. per lb.	0 4- 0 5
Turnips, new, per dozen	2 0- 2 6
Watercress, per doz. bunches	0 3- 0 6

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d. s.d.
Apples, Australian, Tasmanian, and Victorian, per case	13 0-15 0
Apricots, p. sieve	6 6 —
Bananas, bunch	8 0-12 0
— loose, per dozen	1 0- 1 6
Cherries, sieve	3 0- 8 0
Currants, Black, sieve	7 0- 8 0
— Red, sieve	5 0- 6 0
Figs, per dozen	1 6- 4 0
Gooseberries, per sieve or half bushel	3 0- 5 0
Grapes, new Hamburgh, per lb.	2 0- 2 6
— — B., per lb.	0 6- 1 0
— Alicante, lb.	10- 1 6
— Colmars, lb.	1 0- 1 9
— Belgians, lb.	0 4- 0 8
Grapes, Muscats, A., per lb.	2 0- 5 0
— — B., per lb.	1 0- 1 6
Lemons, per case	18 0-25 0
Mangos, per doz.	2 0- 4 0
Melons, foreign, each	5 0- 6 0
— English, each	2 0- 4 0
Nectarines, A., per dozen	10 0-12 0
— B., per dozen	2 0- 5 0
Oranges, per case	20 0-35 0
Peaches, A., per dozen	8 0-15 0
— B., per dozen	1 6- 4 0
Pines, each	2 0 4 0
Raspberries, per doz. punnets	4 0- 6 0
— cwt.	16 0-18 0
Strawberries, A., per lb punnet	0 3 0 8
— pecks	1 3 3 0

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s.d. s.d.
Achillea, per doz. bunches	1 6- 2 0
Arums, per doz.	2 0- 4 0
Asparagus Fern, per bunch	1 0- 2 0
Coreopsis, dz bun.	1 0- 1 6
Carnations, bnch.	0 6- 1 6
— Malmaison, per dozen	3 0- 9 0
Corn Flower, blue, dozen bunches	0 9- 1 0
Eucharis, per doz.	2 0- 3 0
Gladiolus, The Bride, doz bchs.	3 0- 4 0
— Blushing Bride, doz. bchs.	2 0- 4 0
— various, dozen bunches	2 0- 5 0
Gypsophyla, per bunch	0 3- 0 4
Iceland Poppies, p. doz. bunches	0 9- 1 6
Iris, doz. bun.	2 0- 6 0
Larkspur, per dz. bunches	4 0- 6 0
Lilium album, p. doz. blooms	2 0- 2 6
— candidum, per bunch	1 0- 2 0
Lilium rubrum, dozen blooms	1 0- 1 6
Lily of the Valley, dozen bunches	4 0- 8 0
Mallow, dz. bchs.	4 0 6 0
Marguerites, Yellow, doz. bchs.	1 0- 3 0
Pelargoniums, Scarlet, dozen bunches	3 0- 4 0
Pinks, doz. bchs.	1 0- 1 6
— Mrs. Sinkins	2 0- 3 0
— Her Majesty	2 0- 3 0
Pyrethrums, per dozen bunches	2 0- 3 0
Roses, Mermet, p. bunch	1 0- 3 0
— red, p. dozen bunches	3 0- 8 0
— various, doz. bunches	3 0- 9 0
Smilax, dz. blooms	1 6- 2 6
Sweet Peas, per dozen	1 0- 3 0
Stocks, per dozen	3 0- 6 0
Stephanotis, per dozen	1 0- 2 0
Tuberoses, per doz. blooms	0 6 —

REMARKS.—Some Mangoes fetch per doz. 2*s.* to 4*s.*; and Cape Oranges per box, 1*s.* to 1*s.* 6*d.* The best Spinach now is the New Zealand (Tetragonia); Strawberries and Peas are plentiful and prices low; Cherries vary in price—Blacks, 3*s.* to 4*s.*, Duke's, 6*s.*, Waterloo's, 5*s.* to 6*s.*, Bigarreau, 5*s.* to 6*s.*, very fine, 8*s.* per sieve. Greengages, per basket, 4*s.* 6*d.* to 5*s.*; do., per box, 2*s.*, and very good at this price.

POTATOS.

Jersey, 6*s.* to 6*s.* 6*d.*; Bedford's, 6*s.* 6*d.*; Cherbourg, 5*s.* 6*d.* per cwt. *John Bath, 32 & 34, Wellington Street, Covent Garden.*

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending July 5, 1902, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return :—

Description.	1901.	1902.	Difference.
	s. d.	s. d.	s. d.
Wheat	27 2	30 10	+ 3 8
Barley	23 10	24 8	+ 0 10
Oats	19 9	22 10	+ 3 1

SEEDS.

LONDON, *July* 16.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that, as is usual at this season, the dominant feature just now of the trade for field seeds is extreme inactivity, there being a continued absence alike of consumptive requirements and speculative inquiries. The new French Trifolium shows good quality, and is obtainable on very reasonable terms. For Mustard and Rape-seed there is a moderate sale at last week's figures. Bird-seeds of all kinds are meanwhile neglected. As regards blue boiling Peas, the available supplies are now at a lower ebb than ever before known; and Haricot Beans are also reduced to an unusually small compass. The Board of Trade Returns give the imports into the United Kingdom of Clover and Grass-seeds for the past six months as 150,094 cwt., value £332,989, as against 158,278 cwt. value £349,712 for the corresponding six months of 1901.

FRUITS AND VEGETABLES.

GLASGOW, *July* 16.—**The following are the averages of the prices during the past week :**—Grapes, English, 1*s.* 9*d.* to 2*s.* 3*d.* per lb.; do., Belgian, 9*d.* to 1*s.* do; do., home, 1*s.* 3*d.* to 2*s.* do.; Strawberries, Cornish, 1*s.* 6*d.* to 2*s.* per dozen punnets; West Wisbech, 2*d.* to 3*d.* per lb; do., Kent, 2*d* to 3*d.* per lb.; do., Scotch preserving, £15 to £21 per ton; Cherries, French, 2*d.* to 4*d.* per lb.; do., English, 3*d.* to 4*d.* do.; **Oranges, Valencias, ordinary, 420's, 12*s.* to 15*s.* per box; do., large, 13*s.* to 16*s.* do.; do., extra large, 16*s.* to 18*s.* do.;** do., large 714's, 15*s.* to 18*s.* do.; Dutch Gooseberries, 10*s.* per cwt.; do., Scotch, 12*s.* per cwt.; do., English, for preserving, 10*s.* 6*d.* do.; Mushrooms, 1*s.* per lb.; Tomatos, 6*d.* to 9*d* per lb. for Scotch; do., 5*d.* to 6*d.* per lb. for English; do., 4*d.* to 6*d.* for Guernsey; **Onions**, Maltese, 7*s.* to 8*s.* per cwt.; do., Valencias, 9*s.* to 11*s.* do.; Dutch Cucumbers, 4*s.* per basket.

LIVERPOOL: *July* 16.—*Wholesale Vegetable Market*—Potatos, **per cwt.**: Early Regents, 6*s.* 6*d.* to 7*s.* 6*d.*; St. Malo, 7*s.* 6*d.* to 8*s.*; kidneys, 7*s.* 6*d.* to 8*s.*; Jersey, 6*s.* 6*d.* to 7*s.*; new, 2*s.* per 21 lb.; Turnips, 8*d.* to 10*d.* per dozen bunches; Carrots, do.; Parsley, 4*d.* to 6*d.*

do.; Lettuces, 6d. to 10d. per dozen; Cucumbers, 1s. 6d. to 3s. 6d. do.; Cauliflowers, 3s. to 3s. 6d. do.; Cabbages, 8d. to 2s. do.; Peas, 3s. to 5s. per hamper. *St. Johns:* Potatos, 1s. 0d. per peck; do. new, 1d. to 1½d. per lb.; Grapes, English, 2s. 6d. to 3s. do.; Pines, English, 5s. to 6s. each; Apples, 5d. to 6d. per lb.; Tomatos, 4d. to 6d. do.; Currants, red and black, 6d. do.; Strawberries, 3d. to 6d. do.; Gooseberries, 3d. per quart; Peas, 1s. to 1s. 4d. per peck; Cherries, 4d. to 6d. per lb.; Cucumbers, 3d. to 4d. each; Mushrooms, 1s. to 1s. 3d. per lb. *Birkenhead:* Potatos, new, 1d. to 1½d. per lb.; Peas, 10d. to 1s. 6d. per peck; Cucumbers, 2d. to 4d. each; Gooseberries, 2d. to 4d. per lb.; Currants, red and black, 6d. to 8d. do.; Cherries, 4d. to 8d. do.; Grapes, English, 3s. do.; Strawberries, 4d. to 6d. do.; Mushrooms, 6d. to 8d. do.

Answers to Correspondents

*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

BOOKS: *Stove. The book of Orchids*, price 2s. 6d. net, by W. H. White, is published by John Lane, The Bodley Head, Vigo Street, London.

CALCEOLARIAS DISEASED: *J. H. W.* The plants had died from the mysterious malady that makes the cultivation of Calceolarias impossible in many parts of the country, and for which no cure has as yet been found. The shrubby varieties are more subject to the disease than the herbaceous C. amplexicaulis, C. pinnata, and C. scabiosæfolia. Some one should raise crosses between the former and the latter, which might prove impervious to this particular disease.

CELOSIAS GOING OFF SUDDENLY: *W. T.* If you could supply further material we would lay it before an expert on fungus diseases of plants, that which was sent having been thrown away.

CORRECTION.—AWARDS TO HYBRIDS in last issue of the *Gardeners' Chronicle*, p. 22, 19th line, for "Furthermore *as* awards are made . . . for mere hybridism *per se, not* only, &c.," read, "Furthermore *no* awards are made . . . for mere hybridism *per se.*" *C. T. D.*

DISEASED GRAPES: *E. P. D. & Sons.* We would refer you to the answer given to *Jac. A Gardener, and others*, p. 28, of our last issue. The Grapes you send are likewise infected by mildew, and we think that the gardener has employed a remedy against that malady, as it is arrested, with the invariable result that the skin has cracked. We cannot tell you why these things happen.

FIG DISEASE: *W. T. H.* We are of the opinion that the humidity prevailing in Fig-houses is favourable to the spread of these minute funguses, as it is to the Peronospora infestans of the Potato. It is remarked that the Fig when grown on a hot wall out-of-doors, or against a trellis, or as a standard, as it is about Worthing and elsewhere in the south, is never diseased.

GLOXINIA FLOWERS EATEN AT THE MARGINS: *R. G. S.* We should be rather inclined to suspect the brown or the black weevils (the perfect insects, not the grubs), than moths or butterflies, of being the marauders. Go into the house at night provided with a dark lantern, and suddenly turn on the light and examine the plants, and you will probably find them scampering away with all speed.

GRAPE SHOW-BOARDS: *J. R. S.* Shown at one of the R.H.S. meeting by Mr. Fyfe, gr. at Lockinge, Wantage, and made by Messrs. Rowney & Co., London.

GRAPES: *W. H.* Before saying anything about the malady affecting the Grapes, we should like to examine a bunch or two.

HARD WINTERS AND HOT SUMMERS: *W. R.* The mean temperature of the hottest day in July, from 1826 to 1869 was the 5th, in 1852, when it rose to 79·2°. That of the hottest day in August in the same period was 77·3° on the 10th, in 1842. That of the hottest day in September, in the same period was 70·7°, on the 8th, in 1865. It does not follow that if the winter be severe the summer is abnormally warm, although it does occur sometimes, at least in some parts of these islands; as for example the winter 1880-81 was more than usually severe, and the summer was fine and warm with more than usually abundant field crops in northern Scotland, but elsewhere these were about the normal.

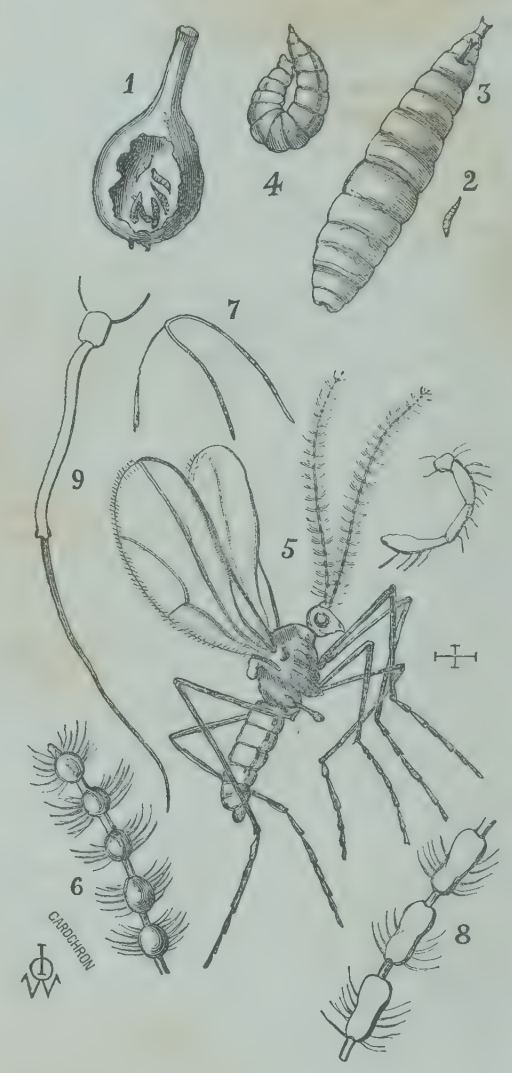

FIG. 18.—THE PEAR-MIDGE.

1, a young Pear cut open, showing hollow made by the five enclosed larvæ; 2, the larva, of the natural size; 3, the same magnified; 4, the same, preparing to leap; 5, the male midge, natural size, indicated by the small crossed lines, the jointed process at the right of the antennæ representing one of the palpi; 6, five of the terminal joints of the male antenna; 7, apex of the wing, showing the thickened margin continued into the extremity of the main vein of the wing; 8, three of the middle joints of the female antennæ; 9, the elongated telescope-like ovipositor of the female.

NAMES OF PLANTS: *J. G.* Lælia tenebrosa—a good variety.—*A. C. Forbes.* 1, Ulmus campestris var. cornubiensis (Cornish Elm); 2, Ulmus campestris var.; 3, Cratægus crus-galli var. pyracanthifolia.—*E. W.* 1, Centranthus ruber; 2, Hieracium aurantiacum; 3, Geranium pratense; 4, probably Lindelofia spectabilis (Cynoglossum longiflorum); 5, Veronica gentianoides; 6, Pellionea Daveauxiana.—*Bush & Co.* Cotoneaster affinis.—*H. E.* 1, Silene Cucubalus; 2, Dianthus deltoides var.; 3, Dianthus Waldsteini; 4, Coronilla cappadocica; 5, Campanula pulla; 6, Rhus Cotinus.—*H. S.* 1, Phacelia tanacetifolia; 2, Eryngium planum; 3, Spiræa canescens; 4, Indigofera decora; 5, Deutzia crenata; 6, Cornus sanguinea.—*C. J.* 1, Vaccinium, next week; 2, Veronica Teucrium; 3, Campanula rhomboidea.—*W. B.* 1, not found; 2, Staphylea pinnata; 3, Ceanothus azureus; 4, Deutzia crenata; 5, Olearia Haastii; 6, Cryptomeria elegans; 7, Hippophae rhamnoides; 8, Symphoricarpus racemosus; with variegated leaves.—*Tixia.* 1, Armeria maritima; 2, Erythræa Centaurium; 3, Euphrasia officinalis.—*A. B.* 1, Saxifraga cæspitosa; 2, S. ceratophylla. *G. F. T.* Lysimachia thyrsiflora.—*N. B., Norwood.* 1, Pulmonaria officinalis; 2, next week; 3, Centaurea montana; 4, Spiræa callosa; 5, C. cyaneus, white variety; 6, Polystichum angulare; 7, Oplismenus Burmanni variegata; 8, Zebrina (Tradescantia) pendula quadricolor; 10, Nephrolepis exaltata; 11, Adiantum macrophyllum; 12, Coleus, garden variety.—*W. S.* Habenaria chlorantha, a British Orchis.—*R. B.* Centaurea suaveolens (Yellow Sultan).—*S. McC., Wicklow.* We cannot undertake to name varieties of Roses.—*C. J.* Pernettya mucronata.

NEW SYSTEM OF HEATING GLASSHOUSE: *W. S., Coventry.* As may be imagined, we are unable to give an opinion of it unless supplied with full details of the system. Will you kindly furnish these?

PEARS, INSECT INFESTED: *J. E.* The insect attacking the fruit is the Pear-midge—Diplosis pyrivora. An account of the insect from the pen of the late Professor J. O. Westwood occurs in the *Gardeners' Chronicle* for July 14, 1888, p. 45, together with figure, reproduced (fig. 18). *J. McC.* The mite having laid several eggs in the eye of the fruit, it is too late to do more than apply a dressing of lime to the soil under the trees and fork it over. In order to lessen the plague, gather up all the fallen Pears or those visibly affected and burn them, not waiting till the caterpillars leave the fruits, as it is then too late. Paris Green applied when the trees are in bloom, might lessen the evil as in the case of the other insects which attack fruits at that period.

ROSES: *D. K. L. & W. L.* Your flowers are the subjects of prolification, due to a renewal of growth after the time when growth generally ceases. What causes the unusual growth is not known. It is very common.

STRAWBERRY CROP FAILING: *Strawberry.* No fungus. You must look for other reasons for the loss of plants and crop.

THREE LARGE STRAWBERRIES: *Constant Reader.* As you wish for great size, and already possess Royal Sovereign, obtain the varieties Auguste Nicaise and La France, or Leader and Monarch.

TWIN ROSES: *E. J. H.* Synanthy, or union of two flowers; not uncommon.

WILD BLACKBERRY BUSHES AND AMERICAN BLACKBERRIES: *E. T. B.* We know of no reason why you should not successfully graft, bud, or inarch the two, but it will be a difficult matter to keep the suckers and shoots of the native plants in subjection. Inarching and budding may be performed now, and grafting in March and April.

COMMUNICATIONS RECEIVED.—J. H. V.—A. W.—S. & S.—C. Sprenger, Naples.—J. W. B., Ltd.—Standard Constantinople.—Justus Corderoy.—J. H. W.—C. T. D.—R. D.—W. Garton.—J. B.—W. J. S.—J. Wallis.—E. Webb & Sons.—E. W. K. & Sons.—H. H. B.—F. G.—J. W.—O. T.—E. H.—J. Gardner.—R. J. A.—E. Howath, Pressburg.—A. C. F.—C. S., Naples.—W. P. B.—S. A. G. M. W.—J. J. W.—M. Buysmann, Middleburgh—W. L. M., Texas.—W. E. G.—H. F.

DIED.—THOMAS WARNER, a well-known nurseryman, Leicester Abbey, on July 16, in the eightieth year of his age.

THE
Gardeners' Chronicle
No. 813.—*SATURDAY, JULY* 26, 1902.

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ELECTRO-CULTURE.*

FOR more than 150 years the influence of electricity upon the growth of plants has formed the subject of experiment, and the solution of the question has thereby been brought nearer, without however our being enabled to say that we have completely solved every detail. Moreover, the subject is so complicated, and every advance in knowledge, similarly by all such questions, have opened out new views and fields of work, and at the same time indicated in what direction experimental work must move. So far the author of this little work. He had the opportunity during several travels in Spitzbergen and Northern Norway in 1868, and in Finnish Lapland in 1871, 1882, and 1884, to observe the peculiarities of plant-life which had likewise arrested the attention of other discoverers. When the cultivated plants of this region recover from the damaging effects of the many night-frosts, their development greatly exceeds that of the same species of plants in more southerly countries favoured with a climate considerably warmer. The abundant development is indicated chiefly in the fresh, bright colour of the flowers, their strong fragrance, the rapid growth of the leaves of deciduous trees, and the powerful scent they exhale; and, in particular, the abundant crops which various plants afford, such as Rye, Barley, and Oats, so far as they have not been destroyed by night frosts. From one hectolitre of Rye-seed, the returns are often as much as forty hectolitres; and from one hectolitre of Barley, twenty hectolitres are secured, and so on; and these results are obtained under a system of poor tillage. It was rare twenty or thirty years ago to find in Finnish Lapland iron ploughs or harrows, everything being made of wood without the least trace of iron in their construction.

Plants require for their development, besides a fertile soil, warmth, light, and moisture, in sufficient quantity, and of these, namely, warmth, but little is afforded in the polar regions. The average midseason's temperature at Spitzbergen is +7° to +8° C. (= 43° and 44° Fahr.), and in Lapland +10 (= 49° Fahr.). Until now, the rapid development of the vegetation was attributed to the length of day during the two or three summer months, but this view is not correct, the warmth and amount of light is less than is enjoyed under the 60° North latitude. This is due to the low position of the sun above the horizon, and the slanting direction of the sun's rays when they strike the earth.

Other reasons must be found in the electric currents whose influences are exhibited in polar light, Aurora Borealis, or northern lights. These currents go from the atmosphere to the earth, and *vice versâ*, as was proved by the International Polar expedition of 1882-1884, so far as circumstances permitted their dimensions to be measured.

The author sees a certain purpose in the needles of Conifers and the grains in the ears of Corn. Their form is, in fact, well suited as a means whereby the electricity of the atmosphere is conducted to the earth, and the reverse, that is, from the earth to the atmosphere, and they can exert an influence similarly to metallic points in contact with the earth. That they do possess this property to a certain extent affords no grounds that they are thus employed; but the presence of electricity in the air places them in the position to serve this purpose.

An experiment carried out by the above-named expedition in Finnish Lapland proved by analogy that they actually serve this purpose, namely, afford a means for the transference of electricity from the atmosphere to the earth. The similarity of these points, needles, &c., to the apparatus with which experiments were made — metallic wire studded with points, and brought into contact with the earth—cannot be denied. It is easy to argue from this circumstance that the electric stream proceeds through the needles of Conifers, and the grains by cereals.

Experiments were further carried out for the purpose of ascertaining if the electric stream exerted a favourable influence on growth. It was found that large Spruce Firs in latitude 67°, like trees in southerly countries, showed considerable variation in the size of the annular rings of the stems, which were more evident the nearer the trees were to the North pole.

The periods of greater growth were found to coincide with the years of periodical increase of the Polar light, and this peculiarity was found to be greatest in regions where the currents in the atmosphere were more numerous and more intensive, thus establishing the connection between cause and effect. It was also inferred that the harvests in Finland showed periodical changes, which agreed with changing number of sun-spots and Polar light (Aurora borealis); the greater the number of sun-spots and Polar lights, the more abundant the harvest of cereals, roots, and grasses.

Considering that the laws which govern atmospheric electricity are identical in every latitude, it would appear that the existence of an electrical stream, cannot be denied, although in the Polar regions the stream passes more intensity.

The first experiment in conveying electricity to plants was carried out in the laboratory of the university of Helsingfors, from the beginning of May till June 24, 1885, seeds of Barley, Wheat, and Rye, to the number of four were sown in pots of moderate size. Suspended above the pots was an isolated net of metal furnished with points, and the soil in the pots was connected with the ground by means of sheets of tin in such a manner that the different divisions, when the electric stream passed from the pole of a Holz machine, it entered division 1 from the wire net to the plants, while it had in division 2 the reverse direction, and division 3 received no current. The negative pole was in this manner connected with the earth; the soil in the pots was afforded water of equal temperature and quantity. The height of the plants and breadth of the leaves were taken at certain intervals of time. A noteworthy difference was noticed earlier and stronger in the plants at the end of the first week in divisions 1 and 2, than in 3, the machine working five hours daily.

The experiment was concluded on June 24, when the greatest amount of growth in divisions 1 and 2 was estimated at 40 per cent. Seeing that the plants in division 3 grew under the same outward conditions, the reasons for this large increase of growth must be ascribed to the electrical current applied. Scarcely any differences were remarked in divisions 1 and 2, although the current was a positive one in No. 1, that is from the wire netting to the earth, and in No. 2 it was in the reverse direction; so that by this experiment no difference was discernible between + and — electricity. In the same summer, experiments were carried out in a little field of Barley in Niemis, parish of Wichtis, province of Nyland, and in spite of drought, the results were very satisfactory, the increase amounting to about 37·1 per cent.

Other experiments on a more extensive scale with garden crops resulted in equally satisfactory results, the excess production over the control-plants grown under normal conditions being in Turnips 107·2 per cent., Potatos 76·2 per cent., Mangold Wurzel 65·3 per cent., Radishes 59·1 per cent., Parsnips 54·5 per cent., Leeks 42·1 per cent., and white Cabbages 43·6 per cent. A few vegetables did not respond to the treatment, but this was discovered to be due to lack of moisture in the soil.

Experiments with Strawberries showed a remarkable shortening of the time required

* *Elektrokultur, durch elektrische Behandlung, — Auf Mehrjähriger Versuche dargestellt*, von Dr. Selim Lemström, Professor der Physik au der Universitäl Helsingsfors.

to ripen a crop, being twenty-six and thirty-three days, and in the control plants fifty-four days; the action of the current causing a most remarkable degree of earliness. The accounts of the various experiments carried out in Finland, as well as in Burgundy, are most interesting, and prove the great value of the artificial application of electricity to field and garden crops under ordinary conditions of cultivation and of the weather, and it is safe to predict that in the course of time we shall find electrical machines of various powers suitable for large or small holdings taking their place beside the ordinary adjuncts of good cultivation. For the cultivation of various plants, as Lettuce, Asparagus, Tomatos, Endive, Cucumbers, Radishes, &c., under glass in temperate climates in the winter season, they will become at length indispensable.

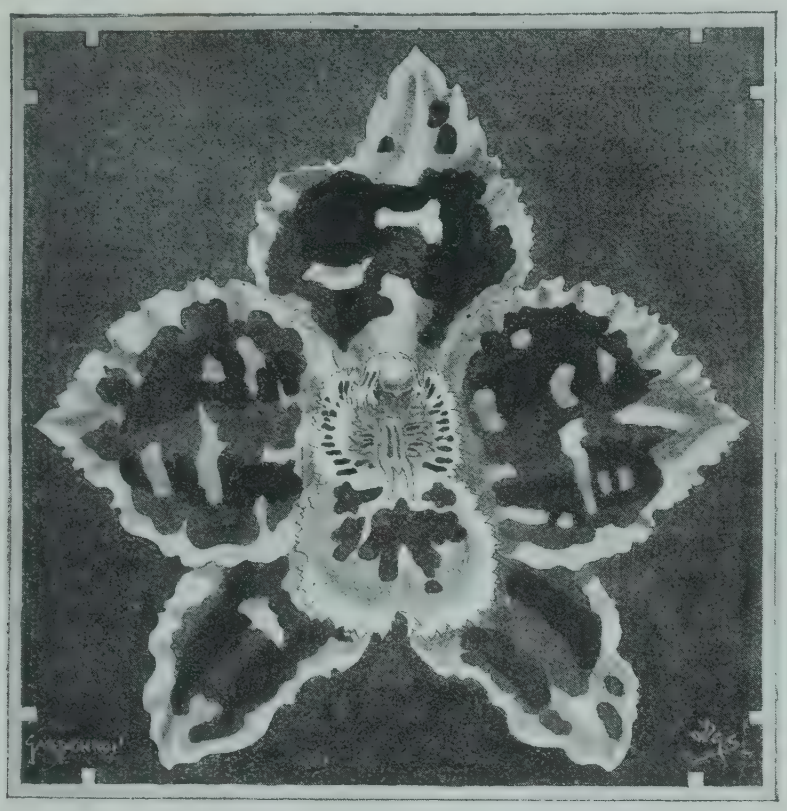


FIG. 19.—ODONTOGLOSSUM × ARDENTISSIMUM (O. PESCATOREI × O. CRISPUM).

NEW OR NOTEWORTHY PLANTS.

TULIPA WILSONIANA, *spec. nova.*

THIS very charming Tulip must be regarded as another very distinct member of that charming group of Tulips of which the brilliant T. linifolia, T. Batalini, T. Maximowiczii, and T. Dammanni have already become known. It comes nearest T. linifolia, from which botanically it differs in the bulb, bearing a mass of protruding woolly hairs (short and bristly in T. linifolia), in having fewer and somewhat broader leaves, more distinctly margined with red and more upright growing in the later stages of development, in the obovate inner flower segments (all ovate and apiculate in T. linifolia), and in the longer ovarium and broader filaments. It is paying a tribute to the memory of the lamented Mr. G. F. Wilson, of Weybridge, by associating his name with the present very distinct and beautiful new species of Tulip.

Bulb small, rounded, 1½ to 2 cm. in diameter, with a long neck terminating in a sharp point. Bulb-coats brown, of a thick parchment-like texture, perfectly glabrous for two-thirds of their inner surface, the upper third part clothed with a thick layer of soft woolly intertangled hairs, these protruding like a sort of short beard beyond the top end of the bulbs when the protecting end of the bulb-coat is removed. Peduncle short, 5 to 10 cm. long, glabrous; leaves usually five in number, prostrate in the first stages of development, more or less falcate and very narrow, linear lanceolate, the largest 12 by 1 cm., the smallest 7 by ¼ cm., very glaucous and much undulated, deeply channelled down the face, with a prominent, narrow, red, cartilaginous border. Perianth about 5 cm. in length, of a particularly deep and full vermilion-scarlet; outer segments oblong, ending into a small cusp; inner segments obovate, more or less retuse. The base of the segments bears a small black blotch without any yellow border. Stamens 2 cm. long, overtopping the ovarium, filaments glabrous, subulate, the under half black, and the remainder deep red coloured; anthers linear; pollen bright yellow. Ovarium pale green, trigonous; stigmas yellowish, of same diameter as the ovarium. Flowers about the first or second week in May. Native country, mountains of Trans-Caspia, about 100 kilomètres south-west of Aschabad. *J. Hoog, Haarlem.*

ODONTOGLOSSUM × ARDENTISSIMUM.

IN this showy hybrid between a spotted form of Odontoglossum Pescatorei and, it is said, the heavily blotched O. crispum Franz Masereel, if the hybridist does not triumph over Nature's natural productions, he at least makes a very good endeavour (fig. 19). Spotted Odontoglossums have been the fashion for some years, and high prices have been obtained for some of the best forms. But their recovery as chance plants in about the proportion of one or two to the thousand imported plants is slow, and so M. Chas. Vuylsteke hit on the plan of raising them from seeds in the same manner as that by which he had already raised several fine Odontoglossums, and a batch of the resultant plants, all more or less good and finely blotched, was staged by him at the last Temple Show; the subject of our illustration, the best of them, securing a First-class Certificate, and three of the others Awards of Merit. Unfortunately, by a misunderstanding, the plants were taken for forms of Odontoglossum crispum, and were at the time so recorded; but when the true story of their production was known, it was decided by the Orchid Committee of the Royal Horticultural Society to adopt the name Odontoglossum × ardentissimum as the primary name of the set, and to include all others of the same class under it. The flowers of O. × ardentissimum, while partaking most of O. crispum in size and form, bear distinct traces of O. Pescatorei in the lip; they are white blotched with claret-purple, the crest being yellow, with reddish markings.

THE HAY CROP OF 1902.

IN consequence of the small amount of rainfall, and the low temperature of the present year up to the beginning of June, there was, generally, but a poor prospect of a satisfactory hay crop. However, the old adage, that "a dripping June puts all things in tune," became true in the present season, for the ample rains of June and the increase of temperature caused the grasses and Clovers to grow most rapidly, with the result that in many districts a more than average crop of hay has been harvested.

The continuous bright sunshine of the last two weeks of June and the first week in July rendered the period of haymaking very short, and enabled the produce to be got together with but little expense, and mostly of good quality.

The hay crop of the Rothamsted Experimental Station, from the portion of Rothamsted Park, which has been under experiment since the year 1856, a period of forty-seven years, shows a variable result in the present season. Under some conditions of manuring the hay crop is considerably over average, while under other conditions of manuring there is a deficiency of hay compared with the average, this result being greatly dependent upon the character of the various grasses, Clovers, and other plants which make up the mixed herbage of the crop. There is a range of produce from 9 cwt. of hay per acre without the application of any manure for the whole period of forty-seven years, to 68 cwt. of hay to the acre on the plot of land the most heavily manured. That is to say, the weight of crop varies from less than half a ton of hay per acre to nearly 3½ tons to the acre; but in the latter case the produce is of a very coarse, grassy character, and not well adapted for the feeding of animals.

The best quality of hay has been yielded in the present season on the plots where there was a liberal application of potash salts in the manure, which induced a remarkable growth of Clovers and Vetchlings. The application of a full mineral manure containing potash yielded 42½ cwt. of hay per acre, being 7¼ cwt. per acre more than the average; while the application of basic slag as manure, but without potash, has had but little effect, either on the weight of hay or in the production of the better quality of herbage. Basic slag without a potash supply yielded but 19⅜ cwt. of hay per acre, being only 10⅜ cwt. in excess of the unmanured plot, and is 10⅜ cwt. of hay less than in the average of years. The plots, therefore, where there was a liberal available supply of potash gave the best returns of hay, both as to quantity and quality, in this somewhat abnormal season of 1902. *J. J. Willis, Harpenden.*

THE WILD FORMS OF CLEMATIS FLORIDA, C. PATENS, &c.

CLEMATIS florida (fig. 20), Thunb., and C. patens, Morren et Decaisne, were introduced into this country from gardens in Japan, and were at first considered to be distinct species, the differences between them being supposed to be as follows:—

C. florida: leaves bi-ternate, sepals white and touching or overlapping, peduncle with two leafy bracts.

C. patens: leaves simply ternate, sepals blue not touching at the edge, peduncle ebracteate.

Among the cultivated specimens of these collected in Japan and now preserved at Kew, I find that bi-ternate leaves occur occasionally in C. patens. Both Franchet and Maximowicz assert that the peduncles of this form are occasionally bracteate (in the Kew herbarium all the specimens of C. patens are ebracteate). The colour of flowers is of little importance in cultivated specimens, as regards species-making, and the ordinary form of C. patens is whitish. The closeness of the sepals is also variable. All the assumed distinctions break down, and Kuntze was evidently correct in referring both forms to C. florida, Thunberg, which is the oldest name. In this he has been followed by Matsumura, who reduces to this species also the following forms: C. Sieboldi, Don, C. hakonensis, Franchet et Savatier, and C. cœrulea, Lindley. The latter is the form of C. patens, with violet-blue flowers, simply ternate leaves, and ebracteate peduncles. All the cultivated kinds seem always to have leaves with entire margins, but the bracts are occasionally incised.

C. hakonensis, Franchet et Savatier, which was found in hedges in a very cultivated district in Japan, has simply ternate leaves with entire margins, bi-bracteate peduncles, and sepals four or five in number. This plant, although doubted by Kuntze as being truly wild, is accepted apparently by Matsumura as the wild form of C. florida occurring in Japan. There is no specimen of it at Kew, but, as will be seen, it differs considerably from the wild plant found by me in China.

Several varieties of C. florida are cultivated in China, but they have apparently never been introduced into Europe, and I am unable to say whether or not the Japanese obtained any of their cultivated forms from China. In the great Chinese flora, the *Chih Wu Ming*, xxvii., folio 9, there is a very imperfect figure of the T'ieh-hsien-lien, the name which is also given to Clematis florida in Japan. This Chinese name signifies "Iron-wire Lily," and the author says the plant is so-called from the resemblance of its fine stems to iron-wire. Lien is a word applied by the Chinese to many plants with large, beautiful flowers, as Nelumbium, Nymphæa, Magnolia, &c., and in its wide-spread application to plants not botanically allied, resembles our own word Lily in popular usage. The author speaks of the plant as cultivated; it is trained by the Chinese over bamboo trellises.

In the same Chinese work, xxi., folio 48, there is a good figure of a twiner called Chuan-tze-lien, which I venture to translate as Twining Lily. It occurs at Yao-chou, near the Poyang lake, on the banks of streams, and is considered by the author to be a wild plant. It has large simply ternate leaves, with entire margins; the peduncles have two large ovate bracts. Two flowers are shown, one with five, the other with six sepals. It is a form of C. patens, and if truly wild is a remarkable form. The venation of the leaves is very peculiar in the figure; there are several veins almost parallel, and such do not occur in the species in any known specimens.

What I consider to be the wild form of C. florida is represented in the Kew herbarium by my numbers 791, 1398, and 3516. These specimens were collected in Hupeh, in two localities, at Patung and Ichang, but the figure now given is taken from those gathered near Ichang on the banks of the An-an-miao stream, a tributary of the Yangtse. The plant was found there creeping over the surface of the ground amidst the grass, and it only attains very moderate dimensions. It has always bi-ternate leaves, variable in shape. The leaflets have margins which are sometimes entire, and sometimes serrate or crenate-serrate towards the apex. The peduncles are axillary, 4 or 5 inches long, and provided below the middle with a pair of bracts which are variable in shape and margin like the leaflets. The sepals vary in number (4, 5 and 6) and are pure white, except for three slightly green nerves which are conspicuous on the outer surface. The sepals are occasionally lobed, and this feature and their variable number are interesting, showing a tendency to variation already established in the wild state. The sepals are like those of cultivated C. florida; indeed, in a Nagasaki cultivated specimen in the herbarium, which shows flowers of different sizes, one of them is precisely like the flowers of my wild plant in every respect. The stamens are black in the Ichang plant. Watters sent specimens to Hance from Ichang, which are referred to C. patens in the *Index Floræ Sinensis*, i. p. 6. They are evidently the same as my wild plant.

There are also specimens from Kiukiang and the Taihoo Lake, wild plants which have been put in the C. florida bundle at Kew. They differ considerably from my plant, as the stamens are white and the sepals narrower.

FIG. 20. CLEMATIS FLORIDA: FROM A WILD SPECIMEN COLLECTED BY DR. HENRY AT ICHANG, NEAR THE AN-AN-MIAS STREAM.

Clematis Hancockiana, Maximowicz, which was collected by Hancock on the hills close to the city of Ningpo, is considered by Kuntze to be a form of C. florida. I consider it to be a different species, as the leaves are different in texture from those of my wild plant, and the sepals are lanceolate and reflexed. It is closely allied, having bi-bracteate peduncles.

Clematis Sieboldi, Don, is figured in *Paxton, Magazine of Botany*, iv., 147. It is a form of C. florida, with ternate leaves. The sepals are cream-coloured, and show the three green nerves, which occur in the wild Ichang plant.

Clematis patens var. Sophia, depicted in *Fl. des Serres*, t. 852, has a longitudina greenish band through the centre of each sepal, which replaces the original three green nerves.

CLEMATIS JACKMANI ×.

This garden Clematis was published by Moore, in the *Florist and Pomologist*, for 1864, p. 193, and the statement is there made that it was produced by Jackman fertilising C. lanuginosa with two varieties of C. viticella, namely, Hendersoni and atro-rubens. It would then appear that C. Jackmani is a cross between varieties of the two wild species, florida and viticella.

Lavallée in *Les Clematites à grandes fleurs*, 1884, p. 11, tab. iv., gives a description and figure of a Clematis, which he considers to be C. hakonensis, Fr. et Sav. He states that it made its appearance in gardens in 1860, when it was sold as C. viticella violacea, C. patens rubra, &c., and that some time afterwards its varieties received the names of Jackmani, rubella, purpurea hybrida, &c.

Lavallée's figure, however, differs considerably from the plant found by Savatier in Japan, which was published in 1879, by Franchet and Savatier as C. hakonensis. It is probable, then, that Lavallée's figure represents a Clematis of garden origin, a hybrid, and it has nothing to do with true hakonensis. There is no reason for supposing that the account of the hybrid origin of Jackmani is incorrect. The *Gard. Chron.* for 1864, p. 823, gives a figure of Jackmani, and confirms Moore's history of its production by Jackman. A very good figure of it is also given in *L'Illustration Horticole* for 1864, planche 414. *Augustine Henry.* [The late Prof. Decaisne held the same opinions as M. Lavallée as to the origin of this plant. Our supplementary illustration shows a fine group of these plants, arranged by Messrs. JACKMAN of Woking, who have done so much to introduce and popularise these beautiful plants. ED.]

NOTICES OF BOOKS.

THE HEPATICÆ OF THE BRITISH ISLES.

Mr. W. H. PEARSON has brought to a conclusion his exhaustive work on these plants. Little of a similar classificatory character has been done since Sir W. Hooker's classical *British Jungermanniæ*, published in 1816; though the late Dr. Spruce and Dr. Carrington added largely to our knowledge of these interesting plants.

Mr. Pearson's work includes a full descriptive account of all the British genera and species, together with synonyms, bibliographical references, and indications of localities. The mere record of the dimensions of the several organs, reckoned in millimètres, gives some idea of the patient labour bestowed on this work. The text consists of over 500 large 8vo pages, with an ample index; whilst the plates, which number 228, occupy a separate volume. These drawings have all been executed by the author, and have been reproduced on stone by Mr. J. N. Fitch. Marchantia polymorpha is the species best known to gardeners, as it may often be found covering the surface of the soil in the pots in which plants are growing.

We are sorry to find the author adopting the plan of putting the name of the first describer of the species in brackets in cases where the species is now referred to another genus. Thus, "Diplophyllum Dicksoni (Hook.), Dum.," is the form adopted for a plant originally called by Hooker Jungermannia Dicksoni, and by Dumortier Diplophyllum Dicksoni, the name adopted by Mr. Pearson. By attaching Hooker's name to it, even though encased in brackets, the author attributes to Hooker a name of which he could not have known anything. This is to commit a serious infringement of the rule that forbids one author from making another say something that he did not wish to say, or, as in this case, that he could not possibly have said. Of course, Mr. Pearson is not alone in this practice; but on principle it is allowable to protest against it. The error arises from the attempt to make a name something more than a name, and to embody with it historical details that would preferably be relegated to the synonymy.

As a monograph, it is a splendid example of what may be accomplished by an amateur. No German professor who devoted his whole time to the work could surpass this in thoroughness and execution.

ILLUSTRATIONS OF THE VEGETATION OF GERMAN EAST AFRICA, from sixty-four photographs by Walther Goetze, arranged and described by Kerr A. Engler, Director of the Royal Botanic Garden and Museum of Berlin. (Engelmann, Leipzig, 1902.)

A SAD interest attaches to the above-mentioned collection of illustrations of the vegetation of the German East African Colony. Herr A. Engler, in his preface, states that nothing definite was known of the flora of this region before the year 1898, although several officials of the German Government, who had travelled among the mountainous districts north of Lake Nyassa, had described it as being particularly rich and beautiful. After the researches of English travellers, who had explored the Shire Highlands, south of Lake Nyassa, it became all the more important for German botanists to ascertain how far the same types of vegetation occurred in the country to the north of the Lake. They were more especially desirous of acquiring a knowledge of the forest and meadow-flora of the mountains, as being intermediate between the alpine vegetation of Kilimandscharo, Usambara, and Uluguru on one side, and that of the Shire Highlands on the other. With this object in view an exploring expedition was organised, the botanical section of which was entrusted to the care of Herr Walther Goetze, who had prepared himself for such an undertaking by study at the Berlin Botanic Garden and Museum. In August, 1898, he started for Dar-es-Salām, thence he travelled overland to Langenburg, through Usaramo, Uluguru, and Uhehe. He collected many unknown plants on his way, and arrived at Langenburg in April, 1899. Hence he made lengthy excursions into the neighbouring Livingstone Mountains, but in December of the same year he suddenly sickened and died. As Herr Goetze had devoted himself to his task with great ardour, he left large collections of plants and insects, besides cartographical sketches and photographs, and his observations had all been carefully noted.

Prof. Engler has considered that a fitting memorial of Herr Goetze's work on the flora of East Africa would be obtained by the publication of a selection of such photographs as give a good representation of individual types of the vegetation of the district, accompanied by correct scientific descriptions. By so doing, Prof. Engler hopes that some insight will be gained into the flora of German East Africa, and that those dwelling in the colony will be incited thereby to fresh research.

PROVIDING AGAINST WATER-FAMINE.

BEARING in mind the great scarcity of water that has been experienced in gardening and agricultural establishments throughout the country during the last three or four years, steps should be taken forthwith to make provision for future requirements in the way of forming underground cisterns, in which to store the rain-water which falls on the roofs of glasshouses and other buildings connected with the gardens. The same remark applies equally to market establishments and farm buildings, in order to secure a good supply of water for the use of the cattle, &c., in the event of the recurrence of another year, or series of years, of protracted drought and semi-tropical heat, such as were experienced during the periods indicated above. Good supplies of rain-water may be secured for horticultural and agricultural requirements at a comparatively small expense by the exercise of forethought and promptitude in the matter in due time.

In many places the only available means at hand of improving the water supply is to store that which, during heavy rains, runs to waste during the late autumn, winter, and spring months. This precious water should be conducted to cisterns, sunken and otherwise; ponds should be made in convenient low-lying places, into which the water rushing down the roads or steep inclines can be easily conducted through a channel or series of channels cut in the soil or turf for the purpose; and existing ponds should be cleaned out, deepened, and otherwise enlarged to such an extent as to render them capable of holding an adequate supply of water for at least twelve months. Ditch-water and rivulets (where not interfering with other people's rights) should be diverted in this direction.

Excavated tanks running parallel with a glasshouse, or the outside range of a block of glasshouses, to take the overflow from the sunken, bricked, and cemented tanks provided in each and all of the houses to receive the rain-water falling on the roofs of same, make capital reservoirs. Tanks, whether running crosswise through all the houses, or running lengthwise under the pathway and connected one with the other (crosswise in each house) by means of 3-inch drain-pipes fixed immediately under the floor-line of each house, as overflows from the tanks in one house to those in the next and succeeding ones. The final overflow pipe being built in the outside wall under the ground-line, an additional length of pipe should be attached to these when the outside reservoir is being built, so as to throw the water well clear of the wall.

The outside tank or reservoir should be of sufficient length, depth, and width to receive the overflow resulting from a good average fall of rain during the interval elapsing between October and May, a "dip-hole," say 2 feet square and 15 inches deep, being provided below the bottom level at the end of the tank from which it is proposed to raise supplies of water for use.

As to how such a tank should be made, perhaps I cannot do better than describe one which I have recently had built. In the summer of 1901 I had a space excavated nearly the full length of a vinery 200 feet long, and running parallel therewith, my object being to build the reservoir in sections, as occasion may arise, one section, when completed, overflowing into the next and succeeding compartments in due time. The first section is about 45 feet long, 9 feet wide at the bottom, 12 ft. wide on top, and 7 ft. 6 ins. deep, inside

measurements; the walls, as will be seen by the respective widths, being built on the batter, one of the side walls underkeying the outside wall of vinery at the groundline, the walls being backed up from bottom to top with 6 inches thick of tempered clay, the same thickness of the plastic earth being used as a foundation for the bricks forming the bottom of the tank. The interstices are filled in with liquid cement, the grouting being brushed well over the floor, the side and end walls being also well washed with liquid cement. The side walls and the end wall abutting an undisturbed solid space of ground, reserved as a site for an elevated iron tank and pumping apparatus, consists of 4½-inch brickwork with headers being introduced at short intervals in the process of building, to give more solidity to the work, which is finished off with bricks laid crosswise on edge. The partition wall, requiring great strength to withstand the pressure from within, necessarily involved by the weight and force of some 25,000 gallons of water, consists of 14-inch work with two buttresses each 2 feet square at the base, built into the 14-inch wall at two feet from the side walls, the buttresses as well as the 14-inch work narrowing gradually into a width of 9 inches (brick on edge) on top, the wall and buttresses, built in cement, being perpendicular on the inside. Three short lengths of 2-in. iron piping are built in, in the centre wall between the buttresses, one on a level with the bottom of the reservoir, one in the middle (this being about 1 inch below the level of the point where the overflow pipe from the house tanks project), and one built in flush in the top course. The middle and top pipes should project a few inches clear of the brickwork. These pipes are to serve respectively as overflows and inlets when the several sections of the reservoir are completed in the manner described, and are being filled with rain-water; and the supplies contained in the second, third and fourth compartments are required to replenish the supplies exhausted in the first division by the large quantities of water required and given at the roots of plants growing under glass, &c., in order to promote and maintain a healthy and fruitful, and floriferous growth. However, these overflows or outlets are stopped with pieces of old sacking and clay in the meantime, the former being put in the apertures first, and the latter afterwards.

When the tanks or series of tanks, or rather compartments, are filled with water up to the level of the overflow pipe from the cement built tanks inside houses, the said overflow pipe will be prized at the point of connection with the inside tanks. The inlet in gutter through which the roof-water is conducted to the inner tanks, will also be stopped with a piece of old sacking and stiff clay, and the roof-water conveyed direct from the gutter into the reservoir; and through the same channel (if necessary) water will be pumped with a chain pump fixed over a well sunk close to the north (high) end of vinery site, and adjoining two ranges of Cucumber-houses for the special purpose of filling the several tanks situated lengthwise in same, under the centre pathways with water in time of need, and which can all be filled with water in the manner indicated, i.e., pumped into a valley gutter and conveyed thence through inlets and underground pipes to tanks. The tanks in the house nearest the pump overflowing, when full, into those in the second and third range respectively.

By way of economising labour, I intend dispensing with the clay when building the next section of the reservoir described above. I shall simply build 4½-inch side-walls (the division wall with buttresses being built as described above), with good lime and sand-mortar, as used in the building of the first section, not striking the joints in the process of building, but, on the contrary, hooking them out a little when the walls are built, and then making the joints with cement, and sharpened in the proportion of one of the former and two of the latter. The bricks forming the bottom will be laid pretty closely together on the naturally sandy base, and afterwards grouted well in with two or three applications of liquid cement (neat), doing the walls over twice with the same liquid applied thereto with a whitewash brush, any slight spaces that may intervene between the brickwork and background of sandy earth being filled in with sand in the process of building. Extra provision may also be made for storing rain-water falling on the roofs of glasshouses by extending the underground tanks already provided therein.

Much more might be said on this most important subject, but I trust I have said enough to cause readers of the *Gardeners' Chronicle* who may have suffered through a scarcity of water during the last few years to bestir themselves in the direction indicated above forthwith, bearing in mind that no matter however good the accommodation provided for the production of first-rate crops may be, that good results cannot be obtained without an ample supply of water being at hand wherewith to maintain a rapid and healthy growth in the crops, whether growing under glass or out-of-doors. *H. W. Ward, Rayleigh.*

THE FLOWER-BEDS AT HAMPTON COURT.

Although the weather has been rather less favourable than that of recent seasons, the summer bedding at this famous place of public resort is approaching its most effective condition. Young gardeners who may be near the district during the next few weeks would find a visit interesting to them, for the general scheme includes the use of many species of plants not commonly employed for the purpose. Moreover, it is a very fair illustration of the methods of decorating the flower-garden that are for the time generally considered to represent the best taste. There is very little sign left of the old practice of massing scarlet Pelargoniums and such plants in beds, which produced flat, vulgar displays of garish colour unrelieved by any greenery, much less by the handsome outlines of the beautiful foliage plants that are now so much appreciated.

The alternative system to that of massing requires very much more thought and care in carrying it into effect, or the result is very unsatisfactory. Since it has become fashionable to have "mixed" beds, there have been quite as many mistakes made as before. Too often the combinations are much less effective than they might be if plants were grouped together whose foliage and flowers in outline and colour harmonise with each other, or form a pleasing and not too striking contrast.

As a rule, harmonies in the beds prove attractive for the greater length of time where the colours are arranged so that they seem to merge into each other.

A common mistake in planting mixed beds, and we see it in London sometimes, is that of making them too dull. Having a desire apparently to avoid the evils of the old massing system, the planter excludes from his beds all the brilliant flowering plants that are associated with that system, and indeed all other plants that are likely to produce a show of colour. He would greatly dislike to be charged with having too much colour, for this would be old fashioned, and he runs to the opposite extreme, and his beds are uninterestingly dull.

It should be remembered that flower-beds are usually surrounded by greensward, and it is in the nature of things that they should be bright, or they become as disappointing as a scentless Rose or Carnation.

The mixed bed if properly planted with a number of tall specimens, having a carpet of other plants between them, is as interesting as a flower-bed may be made, for the reason that it affords a high and low view, and the variety it contains cannot be seen and exhausted as one passes along the path at its side. Peculiarly appropriate for this method of planting are the large beds at Hampton Court, which offer scope that is wanting in beds of less size. It is gratifying to find that they are very good illustrations of this system, and that in planting them the errors alluded to above have been avoided. There is scarcely a bed but is as bright as one could wish it to be, and the grouping shows that great care has been given to the subject.

Some of the combinations that attracted attention are the following:—In one bed are deep red-flowered standard Fuchsias over Violas, there being an abundance of flowers on both species; in another the same Fuchsia was very effective over Iceland Poppies, with a few plants of Gypsophila intermixed; Crassula (Kalosanthes) coccinea and dwarf plants of Golden Privet, has tuft-like Tropæolums and Pelargoniums for edging; white-flowered Antirrhinums are mixed with scarlet Pelargoniums; Cannas intermixed with Abutilon Thompsoni variegata; Ivy-leaved Pelargoniums with pink and rose-coloured flowers over a base of Violas are exceedingly bright; border Carnations over Violas, several beds in various colours; Verbena hybrida, with bright rosy-pink flowers, and fine plants of Humea elegans intermixed. Streptosolen Jamesoni, though not commonly used in flower-beds, is as effective with its brilliant orange-coloured flowers, as when grown in the greenhouse. In one large bed, 12 to 15 yards long and more than 3 yards wide, plants of the Streptosolen 4 feet high are mixed with Plumbago capensis of similar height, and below is a groundwork composed of Hydrangea Hortensia, Pelargoniums, and Antirrhinums. In another bed similar plants of Streptosolen are mixed with a dark coloured Heliotrope of same height. A very mixed bed contains standard Fuchsias from 2 to 5 feet high, the elegant Abutilon Savitzii with variegated foliage, Veronica Hendersoni variegata, and an edging of Pelargonium Manglesii or similar variety. Large plants of Iresine are mixed with Plumbago capensis and Abutilons, 4 feet high. In other beds good use is made of Chlorophytum variegatum as an edging and in other ways. Flowering Begonias are also conspicuous.

In an extensive subtropical bed were noticed Musas, Ficus elastica, Melianthus major, Acacia, Palms, Ricinus, Lantana hybrida, Libonia floribunda, &c.

There are many beds of Roses, and these were brilliant with flowers a week ago, as were beds composed exclusively of Pinks, Aquilegias, Sweet Williams, Delphiniums, &c.

Of carpet bedding there is just one example, in which Alternantheras are mostly used. This year of Coronation the design includes the initials of King Edward VII. and Queen Alexandra.

Some idea of the amount of bedding plants necessary at Hampton Court may be obtained, when it is remembered that there are something like 130 large beds

to furnish, and many of these are planted three times in the year. In addition to these, there is the extensive border 600 yards long, part of which is under a wall, where climbing and creeping plants are trained. The border itself contains a large selection of choice perennial flowering plants, and in summer there are small groups of flowering plants that afford different interest at every step, which is so lacking in a ribboned border. In these groups were noticed Asters, Gladiolus, Carnations, Pentstemons, Lantanas, Godetias, Sweet Williams, Alstrœmerias, Lychnis Haageana, with its exceedingly bright flowers; Celosias, Schizanthus, Fuchsias, Candytufts, Gaillardias, Calliopsis, &c.

The permanent attractions outside the Palace include some noble avenues of trees, the celebrated Vine, and some very aged Yew-trees, any of which are well worth seeing.

During the past two months there have been more visitors than usual, owing to the camping there of the Indian soldiers who came over for the Coronation. *P.*

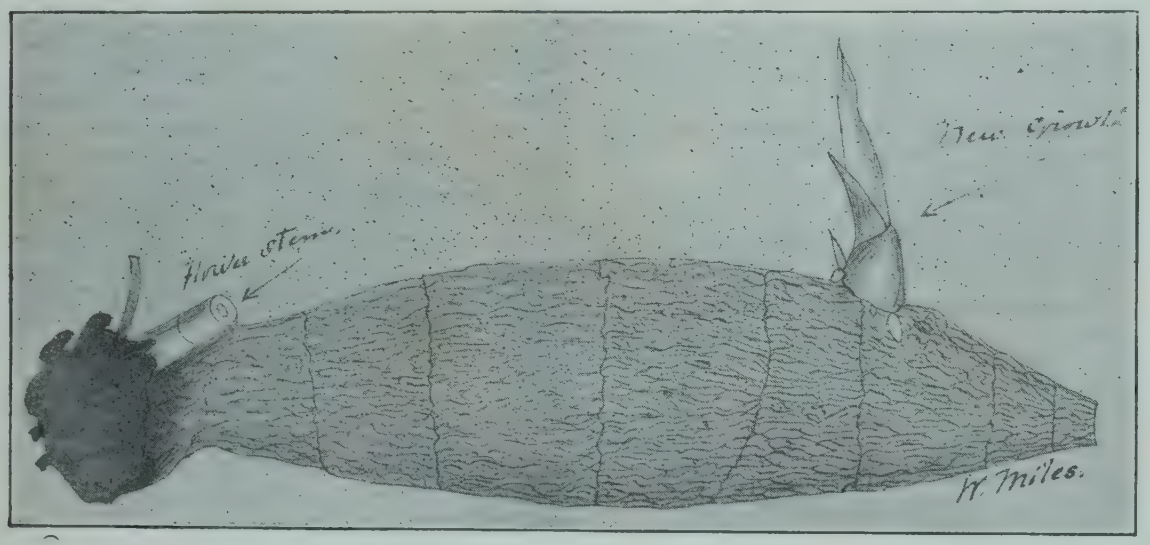


FIG. 21.—PSEUDO-BULB OF CYRTOPODIUM SPS., SHOWING METHOD OF PROPAGATION.

PSEUDO-BULB OF CYRTOPODIUM.

THE illustration (fig. 21) shows an apparently useless pseudo-bulb of Cyrtopodium making a new growth. The pseudo-bulb from which the sketch was made lay on some sphagnum-moss in the stove for a period of eighteen months, before showing any signs of growth. We are indebted to the courtesy of Mr. Miles, gardener to A. Worsley, Esq., Mandeville House, Isleworth, for these few particulars and the sketch from which our illustration was prepared.

CULTIVATION OF RAILWAY SLOPES, HIGHWAYS, &c.

THE suggestion thrown out by several of your correspondents to plant fruit-trees and otherwise cultivate railway slopes, is an old idea, cropping up now and again, but one which would, we fear, be very much objected to by railway companies, who do all that lies in their power to prevent peop'e from trespassing within the lines of their enclosures. With level-crossings they have trouble enough, without going out of their way to court further danger by allowing a lot of gardeners with their paraphernalia of "plant" to commence digging the sides of their already, in many instances, far too slippery banks. Rather, we think, would some of the companies be inclined to offer a substantial prize for the best practical suggestion how to consolidate those slopes, which would prevent a recurrence of those land-slides so dangerous to traffic, more especially after a heavy rainfall. Fruit-trees, too, would always interfere with clear vision so necessary for the driver of the advancing train, and also for the man in the "box" who from his point of vantage signals "line clear, or otherwise." Then there would always be the danger of some of these cultivators getting upon the line, adding considerably to the list of railway casualties. Beyond the small plots cultivated by some of the various station-masters and porters, we see no likelihood of cultivation being carried further. Small as are the cultivable areas of the British Isles, and admitting that we may have some highly cultivated spots, there are still large breadths, the cultivation of which can only be described as most miserable and slovenly. Some of these neglected districts, and they are more numerous and widespread than is generally supposed, might with advantage be appropriated to the culture of fruit trees and sundry other useful horticultural productions; where men could work with more comfort and safety than upon the dangerous slopes of railway embankments. We have always had doubts as to there being any very profitable yearly returns from even the best managed orchards, without going on to the very unfavourable railway slopes or by the highways either, but we are pleased to note that the Duke of Bedford's hardy fruit-growing experiment has proved itself a financial success. Growers are much indebted to his Grace for the trouble and expense he has incurred in showing us that fruit-growing can really be worked at a profit. This is welcome encouragement, and by taking a few leaves out of the Woburn book, we should go and try to do likewise. Hitherto hardy fruit-growing has been taken up only in a half-hearted fashion, what with the uncertainty of the seasons when the trees are in flower, excessive railway rates, market tolls, salesmen's commission, &c., the margin of profit has been so ridiculously small, or often none at all, that even skilled men have hesitated in embarking upon such a perilous and uncertain undertaking. But give Englishmen or Scotchmen something like a Grape-Vine or a Tomato-plant, in which they can see a reasonable chance of quick and remunerative return, they will go at the cultivation of them with such diligence and perseverance, that they overdo the thing and ruin the industry for themselves, and for almost all else besides. The Tomato seems to be the sheet anchor of industry at the present moment; when this fails, one's curiosity is excited to know what will come next.

Then there is also the suggestion to plant fruit-trees by the sides of our highways. The idea is far too Utopian to try in this country for many a long year. True, we saw fruit-trees —Cherries, I think they were—planted by the wayside in Germany. The German children were evidently trained to respect those trees; but would "our boys," or men either, do so? This is just about as ridiculous an idea as that of planting by the railway. Supposing someone was good enough and bold enough to give highway planting a trial, with the view to let the weary wayfarer have the benefit of the fruit when ripe; and supposing the trees, on the occasion of being planted, were dedicated to the care of the public, would anyone be silly enough to believe that this would be a sufficient and lasting guarantee for the safety of those trees? We take the liberty of thinking not. How, also, about the "trippers" who swarm into the country by thousands on high days and holidays? Anyone who has seen a little of them may guess how it would fare, not only with the fruit, but also with the trees.

There seems to be a crying demand for circumstances to be brought about so as to create a more general system of land culture on the small scale, so that the labourers now flocking into the towns may be encouraged to "come back to the land." The great and grand Utopian days of landlord and tenant seem to be passing away. Without labour, many of the tenant-farmers are not only helpless, but also hopeless. Tenants having a working family are best able to hold their own.

In earlier days, circumstances provided the opportunity of creating large farms, which for many a decade answered admirably; but now the circumstances of the times seem to point to the necessity of breaking up some of those large holdings, and forming instead a number of smaller ones. Thus arranged, and with reasonable fixity of tenure, and under similar favourable conditions, these small horti-agricultural holdings would increase and multiply indefinitely. Instead of growing Oak, Ash, Elm, &c., in the hedgerows as now, these would be substituted by choice fruit-trees, in addition to those already in the well-managed orchards. Productions in every department would increase immensely, for the reason that the holdings being small would therefore not be beyond the power of the occupier and his family to manage. Poultry and bees would enter largely into the industry, so that no more imported eggs or honey would be needed. Foreigners with small holdings have always a lot of surplus produce to send to this country, and they seem to find their way into our markets more cheaply and altogether more conveniently than we can do. Cannot we, who are already in the country, find out all about this for ourselves, and so oust the foreigner; or is it that we are so far gone in chronic lethargy, that foreigners must still continue to hold the market, and do the besting business. We seem to be in want of something like a collecting system to forward to a thoroughly well organised "sales centre," so that not everyone should lose a whole day to carry to market a basket containing a few shillingsworth of odds and ends. *W. Miller.*

CLEMATIS ARISTATA.

THIS is a very pretty and graceful species, not new, but not I think well known. It has white sweetly-scented flowers, which in the case of mature plants are produced in great profusion. The accompanying illustration (fig. 22), which precisely represents the original, is from a comparatively small plant I have raised from seed, kindly sent me by my friend, Mr. F. W. Burbidge, M.A., of the Trinity College Botanic Gardens, Dublin. Its identity I have determined first by specimens in the Cambridge Herbarium, some of which are absolutely the same, and secondly by figures in *Loddiges' Botanical Cabinet* (t. 620), and the *Botanical Register* (t. 238).

The flowers are dicecious, and while the male plant is here represented, it is the female which is portrayed in the works above mentioned. In the *Botanical Register*, the sepals are drawn and described as campanulate, but in *Loddiges' Botanical Cabinet*, they are shown quite free, as by the accompanying illustration. The difference, therefore, is not an accordance with sex, and is not one, I imagine, of much importance, but may be due only to want of sun when the plant was drawn. My own observation, I believe, confirms this view. The first publication, according to *Kew Index*, is that of the *Botanical Register*. I have found the cultivation quite easy, and it is said that cuttings root very freely.

The plant is evergreen, a native of Australia, and was introduced in 1812. The leaves are variable in breadth and degree of serration. D. blanda, Hook., *Journ. Bot.* i. (1834), p. 241, is referred by *Index Kewensis* to this species. The name aristata was suggested to its author by the small point "which extends itself beyond the loculaments or body of the anthers." These points are quite clear, I find, in the dried specimens. *R. Irwin Lynch, Botanic Garden, Cambridge.*

FIG. 22.—CLEMATIS ARISTATA.

THE WILLOW-MELAMPSORÆ.

DR. KLEBAHN has during the last few years been doing a great amount of work in experimentally investigating the life-history and the specific relationships of the Melampsoræ which occur upon the Willows. It may be of interest to the readers of the *Gardeners' Chronicle* to have the result of his laborious investigation placed before them in a concise form.

The first species (M. amygdalinæ) has been found near Salisbury by Mr. E. J. Tatum, where it has occurred for many years in succession. The same observer has twice met with the Cæoma on Ribes Grossularia, but to which of Klebahn's species this actually belongs has not yet been demonstrated.

I. Uredospores elongate, smooth at the upper end.
  A. Teleutospores beneath the epidermis.
  1. Melampsora amygdalinæ, Kleb.
    Cæoma, Uredo and teleutospores all upon the same plant, viz., Salix amygdalina, L. It also occurs on S. pentandra, L.
  2. Melampsora Larici-Pentandræ, Kleb.
    Cæoma on Larix decidua, Mill.
    Uredo and teleutospores on Salix pentandra, L.
  3. Melampsora Allii-Salicis albæ, Kleb.
    Cæoma on various species of Allium.
    Uredo and teleutospores on Salix alba, L.
  B. Teleutospores between the epidermis and the cuticle. Amphigenous.
  4. Melampsora Allii-fragilis, Kleb.
    Cæoma on various species of Allium.
    Uredo and teleutospores on Salix fragilis, L., pentandra, L.
  5. Melampsora Galanthi-Fragilis, Kleb.
    Cæoma on Galanthus nivalis, L.
    Uredo and teleutospores on Salix fragilis, L., pentandra, L.

II. Uredospores roundish, without any smooth part.
  A. Teleutospores with a much thickened membrane above, and well marked germ pores. Developed between the epidermis and the cuticle on the upper surface of the leaves.
  6. Melampsora Larici-Caprearum, Kleb.
    Cæoma on Larix decidua, Mill.
    Uredo and teleutospores on Salix Caprea, L.
  B. Teleutospores without thickened cell-wall above. Germ pores not well developed.
  (a) Teleutospores between the epidermis and the cuticle on the upper surface of the leaves.
  7. Melampsora Ribesii-viminalis, Kleb.
    Cæoma on various species of Ribes.
    Uredo and teleutospores on Salix viminalis, L.
  (b) Teleutospores beneath the epidermis on both surfaces of the leaves.
  8. Melampsora Ribesii-purpureæ, Kleb.
    Cæoma on various species of Ribes.
    Uredo and teleutospores on Salix purpurea, L.
  (c) Teleutospores beneath the epidermis, on the under side of the leaves only.
    In this group the uredo and teleutospores present little if any morphological differences.
  9. Melampsora Larici-epitea, Kleb.
    Cæoma on Larix decidua, Mill.
    Uredo and teleutospores on Salix viminalis, L., cinerea, L., aurita, L.
  10. Melampsora Larici-daphnoidis, Kleb.
    Cæoma on Larix decidua, Mill.
    Uredo and teleutospores on Salix daphnoides, Vill., acutifolia, Willd.

11. Melampsora Ribesii-auritæ, Kleb.
Cæoma on various species of Ribes.
Uredo and teleutospores on Salix aurita, L., and cinerea, L.
12. Melampsora Euonymi-caprearum, Kleb.
Cæoma on Euonymus europæa, L.
Uredo and teleutospores on Salix aurita, L., and cinerea, L.
13. Melampsora alpina, Juel.
Cæoma on Saxifraga oppositifolia, L.
Uredo and teleutospores on Salix herbacea, L., and serpyllifolia, L.
14. Melampsora Orchidi-repentis, Plow.
Cæoma on Orchis latifolia and maculata, L.
Uredo and teleutospores on Salix repens, L., and aurita, L.

Charles B. Plowright, M.D., King's Lynn, May 26, 1902.

DIERAMAS.

THERE are few summer bulbous plants which excite more admiration than Dieramas, the correct name for the genus including species Sparaxis pulcherrima, and a few allied forms, as distinct from the true Sparaxis, of which S. grandiflora and its varieties are well known in gardens. Cape bulbs such as Dieramas should be planted in this northern climate of ours with some consideration of their requirements. Imagine long, slender stems, from the top of which depend pretty bell-like flowers of various shades of purple or of white. In botanical language the flowers are borne in panicled spikes, and the leaves are long, linear, and rigid—a description, by the way, which will not convey the impression which a sight of the plants themselves would give. That Dieramas are not easily grown I would be the first to admit, yet I am satisfied that were attention paid to their needs this difficulty could be surmounted. The plant has a liking for moisture, such as is afforded at the margin of a pond, or when the soil is covered with stones. I well recollect observing a group of Dierama pulcherrima almost surrounding a small rock-bound pool, where the wand-like stems and waving flowers of the plants had a delightful look; and the loveliness in another garden of a hundred or two of the plants, self-sown, growing on a little level piece of ground covered with flat stones. These seedlings were of many tints, and some variation of form was observed in the flowers. The plant grows well in partially shaded positions among shrubs, although it looks better where its habit is not dwarfed by adjacent plants. My experience teaches me that spring planting is to be preferred, but in any case some slight protection from cocoa-nut fibre for the first winter or two is advisable. Some gardeners recommend that the planting should immediately follow the flowering of the plants. In any case care should be taken not to injure the corms. Another ready way of increasing the stock is to sow seeds as soon as ripe, where it is intended to establish the plant. The seedlings will probably flower the third year.

The more commonly grown species is D. pulcherrima, which is the Sparaxis pulcherrima of the *Botanical Magazine*, t. 5555. This plant has stems 5 feet or more in height, and has broader leaves, and larger panicles and flowers than those of D. pendula, the other species recognised by Mr. J. G. Baker. The flowers of the type are of a purplish-crimson tint, but as I have already stated, there is considerable variety of tints. This species comes from Cape Colony, and according to Mr. Baker, from the country northward of Uitenhage to the Transvaal. The other species—D. pendula—differs but little in general appearance, though its dwarfer habit and smaller flowers give it less effective appearance. It grows from 2 to 4 feet in height, and the dwarfer form, D. p. pumila, with its smaller flowers, is still less effective. D. pendula is found in the south-eastern portion of the Cape Colony, and northward to Natal and Mount Kilimanjaro. The *Index Kewensis* refers D. pendula to D. ensifolia, and mentions two others unknown to me — cupuliflora and ignea. The plant called D. Thunbergi seems to be D. pendula var. pumila. *S. Arnott.*

OUR TRADE IN PLANTS, BULBS, &c.

THE Board of Trade the other day published its great annual report relating to the trade and commerce of the year 1901. Such a gigantic work is not compiled in a hurry; but the hundreds of pages of excellently printed figures are nothing short of a monument to perseverance and patience worthy of the department whence they are issued. Here we can only quote those figures which are of special interest to our readers. The increase in value noted at first will be marked with satisfaction—

Imports of Plants, Shrubs, Trees, and Flower Roots, entered for value only.

Imports from :	1898.	1899.	1900.	1901.
	£	£	£	£
Germany	43,889	47,735	36,376	44,607
Holland	221,793	213,205	240,828	289,920
Belgium	49,872	51,641	53,906	69,163
France	49,708	54,909	52,290	54,220
Japan	18,149	21,259	20,250	25,081
United States of America	13,395	15,505	15,264	14,754
Mexico	319	1,142	560	1,013
Republic of Colombia	10,428	7,341	1,580	4,788
Brazil	6,259	6,484	2,957	3,062
Other foreign countries	3,410	3,974	3,493	4,400
Total, foreign countries	417,217	423,195	427,504	571,008
Channel Islands ...	10,363	14,631	11,583	14,003
Cape of Good Hope ...	304	230	...	...
Natal	514	761	496	833
British East Indies ...	4,865	3,022	3,222	1,356
Hong Kong	174	299	138	142
Australasia	780	684	88	...
Canada	1,151	931	1,612	509
British West India Islands...	543	488	510	171
Other British Possessions	704	319	610	357
Total, British Possessions	19,598	21,371	18,259	17,371
Grand total	436,615	444,566	445,763	528,379

Exports to :	1898	1899	1900	1901
	£	£	£	£
Germany	856	1,184	657	1,671
Holland	2,307	2,217	1,323	1,314
Belgium	1,734	2,180	1,855	817
U.S.A. (Atlantic side)...	2,520	2,007	7,180	5,261
Other foreign countries	1,393	2,284	2,812	1,084
Total to foreign countries	8,810	10,472	13,827	10,127
British Possessions in South Africa	431	624	138	245
Australasia	313	423	452	460
Canada	813	1,465	1,302	1,287
Other British Possessions	438	601	875	766
Total to British Possessions ...	1,995	3,173	2,767	2,758
Grand total ...	10,805	13,645	16,594	12,885

The totals of imports and exports are as under:—1898, £447,420; 1899, £458,211; 1900, £462,357; and 1901, £541,264—an excess over the previous year of £78,907.

PLANT NOTES.

NYMPHÆA ROBINSONI ×.

THIS excellent Nymphæa differs from N. Marliacea × and N. Laydekeri ×, and is an admirable plant for those who do not require one that spreads much. On examining some plants this spring with a view to dividing them, I found that it was impossible to divide this plant, although it is several years old; and it still possesses but one crown, which is borne on a stem like that of a Tree Fern. This stem has grown about 5 inches since last examined a year ago, so that it will probably have to be shortened after a year or two to keep it deep enough in the water. The other species named have spread laterally into several crowns, and may be readily divided. N. Robinsoniana × comes between the two as regards size of leaf and flower, and the latter is very bright in point of colour. Here, it is the earliest to open its flowers, the first having expanded on June 20. Altogether it is a very desirable addition to Water-Lilies, and a free flowerer. *J. C. Tallack, Shipley Hall Gardens, Derby.*

The Week's Work.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Fig-house.—The first crop on planted-out trees having being gathered, the atmosphere of the house should be warmer and moister for the second crop, the day temperature being 75° to 80°. Fully-grown trees in a restricted border should be top-dressed with a fertiliser, watering same afterwards; or in place of this be afforded liquid manure. The best borders are those that are well drained and rather shallow, and abundant fibrous roots should be encouraged to the surface. Fig trees in pots that were forced early and are now out of doors, should not be allowed to want for water. Pot-Figs need to be repotted every autumn. Remove a good portion of the old soil, and repot with fresh fibrous loam mixed with lime rubble, bone meal, and a fertiliser. Keep them rather dry in a cool house, until they are started into growth over bottom heat.

Vines.—Pot-Vines intended for fruiting early next year should now be completing their growth, and will need less water. Continue to keep the foliage clean and healthy, and allow the temperature to rise to 90° with sun-heat, but keep the house cool and airy at night. When the wood has become well browned, put the plants out-of-doors against a south wall. Planted-out Vines from which the crop has been taken will need much attention in this cold, sunless season. Keep the house dry and warm in the daytime, with fire-heat in the absence of sun, but cool and airy at night. Give no water to the border at present, unless on examination it is very dry. Induce the foliage to remain on the canes as long as possible. Use an insecticide to keep red-spider and thrips in check.

Muscat-house.—Maintain a dierr atmosphere and a mean temperature of 70°, with a little ventilation constantly. Increase the amount of air early in the day, and permit the temperature to rise to 85° or 90° with sun-heat. Muscats require much water whilst the berries are swelling. Cover the inside border with some dry material when the berries begin to change colour. Shorten lateral growths at intervals.

The Late Vinery.—Lady Downes' variety should be afforded air night and day when the seeds are forming in the berries, to prevent scalding. Increase the amount of air early in the morning. The temperature may rise from 80° to 90° with sun-heat, and the night temperature should be 65°. Do not water the border except after examination, and if it be necessary, sprinkle the surface first with a little Vine-manure. Maintain a moist atmosphere; shorten lateral growths.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Colax jugosus should be attended to in respect to root requirements when the new growth is about 2 inches high. This species is not one of the best of growers, and the cultivator will need to give close attention to its requirements. The rooting medium should consist of equal parts of fibrous peat, fibrous loam, good leaf-soil, and chopped sphagnum. Make the pot half full with crocks, and pot rather firmly, raising the base of the plant and the compost slightly above the rim of the pot. Insert a few heads of living sphagnum on the surface. Arrange the plants in the coolest portion of the intermediate-house, and afford them sufficient shade. Damp the spaces between the pots frequently, for atmospherical moisture, shade, and fresh air are the most essential items to be observed. The compost should never be allowed to become excessively dry, but until root-action is further advanced it would be very easy to over-water the plants. When growing freely, the supply may be increased so long as favourable weather causes quick evaporation.

Oncidium concolor.—The young growth is sufficiently advanced for potting or re-surfacing to be done. This species is liable to deteriorate after the first few seasons; but such a charming Orchid is worthy the attention and perseverance of the grower. Use a compost of equal parts fibrous peat and chopped sphagnum. Provide good drainage with chopped Fern-rhizomes, and select pans rather than pots. Arrange the plants in the coolest part of the intermediate-house or the warmest part of the cool-house. Water must be afforded with extreme caution, especially if the plants are grown in the cool-house.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Budleigh, Devonshire.

Strawberry-beds.—Plants that are to be retained for another season should have all runners and a few of the oldest outer leaves removed with a knife as soon after the fruits have been gathered as possible. Clear away the remains of the mulch, and then go over the ground with the flat hoe, and afterwards rake off weeds, &c. Following this clearance, the plants will soon start into growth again, and continue to throw out many runners, which should be cut away at short intervals, as they tend to weaken the plants. Where artificial manures are used for this crop, a little may be scattered between the rows when rain is expected, and lightly hoed in. Plants layered early in the month should have been cut off from the parents ere now, and the sooner they are planted out the better chance they will have to mature plump crowns by early autumn. Select good ground that has been trenched or double dug, and which has a good dressing of stable or farmyard-manure buried 12 to 15 inches below the surface. If the plants are to remain more than a year, they may be set out 1 foot apart, in rows 2 feet asunder, cutting out every other plant after the fruit has been gathered. Make the soil very firm around each plant, and keep the plants well supplied with water until they have become established. Remove all runners as they appear.

Apricots and Peaches.—Look over the trees every few days, and gather only those fruits that are quite ripe, as the flavour of an Apricot is very much better when allowed to fully ripen on the tree. If not required for a day or two, place them on sheets of paper in a cool fruit-room. I generally find it necessary to protect this fruit from blackbirds and thrushes, either with ½-inch mesh net or hexagon, making the same secure top and bottom. Early Alexander and Amsden June Peaches are now ripe with us on an east and south wall. We commenced to gather the former variety on the 17th inst., but the latter variety is much the better in flavour, and being less liable to drop its buds in spring, is a more certain cropper here. Great care is required when gathering both these fruits not to bruise them; the part nearest the foot-stalk will stand the necessary pressure best. Use the garden-engine or syringe upon the Peach wall two or three evenings each week during this hot weather.

Budding.—The stocks of stone-fruit trees will soon be fit to be operated on, though showery weather is much the best for the work. Should an Apple or Pear graft have failed, these may also be budded providing suitable young growths have been left for the purpose.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Budding Roses.—Owing to the dull, cold weather during May and part of June, the growth of Roses was much retarded, and budding operations will be a little later than usual. Obtain the best dormant buds from well-matured and firm shoots. The process of preparing and inserting the buds is a delicate one. It is essential that the cuts should be made clean, and the ties be lightly but firmly made with strips of raffia, taking care that the bud itself is left entirely free. In the case of standards, bud as close as possible to the main stem, and in dwarf seedling Briars insert the buds very close to the base. As soon as the buds commence to swell, loosen the ties, and cut the tops of the stock back to the level of the bud.

General Remarks.—Look over flower-beds frequently, and remove dead or decaying leaves and flowers, seed-pods of Pelargoniums, Verbenas, and of all kinds of bedding plants, directly the petals fall, or the production of seeds will greatly exhaust the plants, and lessen the production of flowers. Verbenas particularly require such attention, and when these plants have well covered the ground, pinch out a number of shoots that more light and air may be admitted. In this way the plants may be kept sturdy, and continuing to grow, will be less subject to mildew, a disease which will surely attack them if the growth becomes dense. The marginal lines forming the different patterns in carpet-bedding should be kept clear and distinct, and to maintain this style of bedding effective, such free-growing plants as Mesembryanthemum cordifolium variegatum, &c., must be frequently pinched. Zinnias, Salpiglossis, and Phlox Drummondi are charming subjects for forming clumps in the mixed border, their continuity of bloom and beautiful colours making them amongst the most valuable plants for this purpose. There should be afforded plentiful supplies of liquid-manure and soot-water according to circumstances and the state of the weather; and in the case of Zinnias, if extra strong flowers are required the buds must be freely thinned.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Celery intended for very early use is well advanced and ready for partial earthing-up. Remove all sucker growths first, tie up the leaves with raffia, give a thorough root-watering with clean water, then another with liquid-manure from the stables; following this, afford sufficient clean water to rinse off any liquid-manure there may be upon the leaves of the plants. On the following day, or when the plants are quite dry, commence to earth-up. Care must be taken not to place too much earth at one time, or it will get into the heart of the plants and cripple the young leaves. Celery for succession and late crops will need root-waterings, and the soil around them should be kept free from weeds.

Cabbage. — For supplying a crop next spring, such early-hearting sorts as Ellams' or Wheeler's Imperial (the last named if the seed is obtained from a reliable source, being still one of the best), may be sown in the first week of August; another sowing being made in about the middle of the month, and a final sowing a fortnight later. Plants from this last sowing may be left in the seed-rows during the winter for planting out early in the spring. An open piece of ground in good heart should be selected for the early sowing. Sow the seeds thinly in drills at 1 foot apart, and should the weather be dry, water the drills two or three times previous to sowing. In respect to the later sowings, I sow a few rows between the newly-planted Strawberries, where they invariably succeed without injuring the Strawberry-plants.

Endives.—Make a main sowing of green, curled, and Batavian Endive. A border from which early Potato-crops have been lifted is a suitable place on which to sow the seeds. Sow thinly in drills at 1 foot apart, where they can be thinned out to the same distance apart in the rows. The plants pulled out when thinning may be transplanted to other warm borders.

Shallots and Garlic.—Take up these as they ripen, and spread them out in an open shed until they are thoroughly dry. Select medium-sized firm bulbs for the next planting, and store both lots in a cool, dry, airy room.

Herbs.—Cut these as they come into flower, particularly Knotted Marjoram, Sweet Basil, Summer Savory, Tarragon, and Mint. Spread them out thinly in an open shed, and turn them over occasionally until quite dry; then wrap each separately in large sheets of thin brown paper.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Freesias.—These bulbous plants bear no forcing in the ordinary sense of the word, and the only way to get early flowers is to pot the bulbs early. Imported bulbs are now to hand, and in gardens where the plants are well grown there should also be plenty of well ripened, home-grown bulbs of good size. These should be shaken out, the larger ones selected and repotted in 5 or 6-inch pots, putting about eight bulbs in the former, and twelve to fourteen in the latter. Fill the pots to within 1½ inch of the rim with a rather light sandy soil, then set in the bulbs, and cover them 1 inch deep with the compost. If the bulbs are thoroughly ripe, there is no need to cover the pots with ashes, as the bulbs will start readily in a cold frame without such covering. The sluggishness of growth, which used to be a frequent cause of complaint, was due to the bulbs not having been sun-baked, as they require to be.

Lachenalias should be treated somewhat similarly, and may now be either potted up into 5-inch pots, or placed in baskets in which they may grow through the wires, this latter being a convenient and decorative method of treatment. The soil should be sandy, and have a good proportion of well-decayed cow-manure mixed with it. Sometimes the big bulbs split up, and make many useless, small crowns, but these may be to a great extent avoided, by not affording them much water for a considerable time after potting. I think the two best forms are L. tricolor and L. Nelsoni, and where the latter is well grown it is the most handsome yellow variety.

Mignonette.—The earliest batch of Mignonette for winter-flowering should now be sown, and may be followed by another in about the middle of August. The latter sowing will probably be the most useful, as the plants will carry their flowers well into the new year. Use good soil containing some lime, for the seed-pots, for Mignonette must be afforded lime if it is to grow well. I supply lime in the form of broken-up plaster. The seed-pots, which should be those in which the plants will flower, should be well drained, and the soil rough, except for a little on the surface.

Show Pelargoniums.—All the Pelargoniums of this section should be pruned, the larger growers cut back almost close to the base of this year's shoots, and those of the fancy section not quite so hard. After pruning the plants into shape, place them in a cool frame in full light, and with plenty of ventilation. Syringe them twice a day, but give little or no water to the roots at present.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

APPOINTMENTS.

TUESDAY,	JULY 29	Southern Counties Carnation Society's Show, at Southampton.
SUNDAY,	AUG. 3	Chambre Syndicale des Horticulteurs Belges, Ghent, Meeting.
MONDAY,	AUG. 4	Basingstoke Horticultural Society, Show. Ramsey Horticultural Society, Show.
TUESDAY,	AUG. 5	Royal Horticultural Society, Committees Meet. Scottish Hort. Association, Meeting.
THURSDAY,	AUG. 7	Midland Carnation and Picotee Society's Show, at Birmingham (2 days).
SATURDAY,	AUG. 9	Carnation Show at Old Trafford, Manchester.
WEDNESDAY,	AUG. 13	Wilts Horticultural Society, Show at Salisbury. Dudley Horticultural Society's Show (2 days).
THURSDAY,	AUG. 14	Sheffield Floral and Horticultural Society. Exhibition. Taunton Deane Horticultural and Floral Society, Exhibition.
TUESDAY,	AUG. 19	Royal Horticultural Society's Committees Meet.
WEDNESDAY,	AUG. 20	Shropshire Horticultural Society's Show at Shrewsbury (2 days). Royal Oxford Horticultural Society's Show.
THURSDAY,	AUG. 21	Jersey Agricultural and Horticultural Societies' combined Show (2 days).
FRIDAY,	AUG. 22	Strathearn Horticultural Society's Show (2 days).
SATURDAY,	AUG. 23	Holmes Chapel and District Horticultural Society's Exhibition.
TUESDAY,	AUG. 26	Harpenden Horticultural Society's Show.
WEDNESDAY,	AUG. 27	Bath Floral Fête.
THURSDAY,	AUG. 28	Arundel, Littlehampton and District Agricultural and Horticultural Society. Sandy and District Floral and Horticultural Society Show.
FRIDAY,	AUG. 29	Bradford Horticultural Society Exhibition.

SALES FOR THE WEEK.

MONDAY, JULY 28—
Hale Farm Nurseries, Hanworth, and property at Bexley Heath, by Protheroe & Morris, at the Mart, Tokenhouse Yard.

THURSDAY, JULY 31—
At the Mart, Tokenhouse Yard, E.C., by Edmund Smith & Co., the Freehold of the Fruit and Flower Farm, known as "The Strawberry Gardens," Arun Bank, Rudgwick.

FRIDAY, AUGUST 1—
Orchids, by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —63 3'.

ACTUAL TEMPERATURES:—
LONDON.—*July* 23 (6 P.M.): Max. 63°; Min. 54°.
July 24.—Dull, warmer.
PROVINCES.—*July* 23 (6 P.M.): Max. 67°, Home Counties; Min. 52°, W. Coast Scotland.

The Physiology of Heredity.

THE first of the reports of the Evolution Committee of the Royal Society presented to the Committee on December 17, 1901, is now before us, and consists of a record of the experiments made by Mr. W. BATESON, F.R.S., and Miss E. R. SAUNDERS, of Newnham College, Cambridge. The former has taken up the investigation of the Mendelian law of hybridity in connection with animals; and the latter in connection with plants, to which we mainly confine our remarks. This law, which was deduced by Mendel from a continued study of the behaviour of cross-bred Peas extending over a decade, appeared in 1865 unfortunately under circumstances by no means favourable to extended publicity, to which fact and possibly to its appearance before the scientific world was ripe for its appreciation, it was practically ignored until the end of the century, when DE VRIES, CORRENS, and others working in the same connection and deducing similar results, its importance became recognised. A full translation of the original paper recently appeared in the *Journal of the Royal Horticultural Society*, from which our English readers will perceive not only the masterly and scientific manner in which MENDEL worked, but also will gather some idea of the far-reaching character of the law itself. In our issue of Sept. 21, 1901, p. 226, we gave a brief abstract of the principles deduced, and need not therefore repeat them. The discovery of any law or reasonable working hypothesis for the breeder, whether of animals or plants, is of immense importance. Hitherto, although the principle of heredity was well recognised in so far that breeders were always careful in the selection of parents which presented the desired characters, the results of crossing, especially in plants, were often such as to form a complete puzzle, the resulting offspring being of such diverse character as to lead to the idea that when once the parental influences were mingled, they combined in an altogether indiscriminate fashion, the result being sometimes subsequent constancy of the hybrid type, and sometimes an instability which pointed to no law whatever. MENDEL'S experiment, however, tended to show, and indeed in the case of the Peas he used as material, went to prove that distinct and definite characters were, so to speak, elementary ingredients of the constitution, and that by careful crossing between plants presenting different characters, the reappearance of these in the subsequent progeny could be fairly relied upon in definite proportions.

One very important feature was noted in this connection, and that was, that while many or even all of the offspring of the first cross outwardly exactly resembled one of the parents, and hence did not appear to be hybrids at all, they nevertheless, when self-fertilised produced offspring with both grandparental characters evidenced in definite ratios. Here it is clear that the plant-breeder found a fresh field open to him, for without such knowledge, this apparantly unchanged material, potent as it is in subsequent possibilities, would be entirely ignored, and only the exceptions, quite possibly due to foreign influence, would be utilised with an equal chance of misleading results.

Another interesting factor was the discovery that definite characters, such as hairy or glabrous foliage, form or colour of seed, tall or dwarf habits, and so on, fell into two classes, which he termed dominant and recessive respectively. The dominant characters, as the name implies, have a self-assertive power, sufficient to prevent the "recessive," or less assertive ones, from making their appearance outwardly in the first generation, and it was due to this, that the first generation resembled so closely one of the parents, i.e., the dominant one. The recessive characters, however, are only latent, their "gametes," or representative potencies, are in the system of the plants, associated as it would appear, but not combined, with those of the dominant character, and in the process of fertilisation, the two kinds become dissociated, and by sexual alliance reproduce a certain ratio of plants of the recessive character. Here, obviously, much light is thrown on the question of reversion, the occurrence of which could be predicted by MENDEL'S law, always provided that one could work with simple material and be secured against that still enigmatic factor, spontaneous or seemingly spontaneous variation. The experiments were made in the present case with Lychnis, Atropa, Datura, and Matthiola, the results of the last named occupying the bulk of the report. In Lychnis the Mendelian law appeared to be fully confirmed as regards the definite character of hairy leaves or glabrous ones. The hairy character is invariably dominant, and the glabrous recessive; and the actual numerical results corresponded as closely as possible with the theoretical ones deduced from MENDEL'S law. The hairy and glabrous forms, being crossed, all the offspring were hairy, and when these offspring were crossed *inter se*, the dominant or hairy character resulted in 408 cases as against 126 of the recessive or glabrous, very close indeed to MENDEL'S requirement of 3 to 1.

Crossbreds of the first generation fertilised by the parental recessive form, yielded nearly equal numbers of both (447, 433), and the law presumes an equality; while when crossed with the dominant form, all the offspring were dominant, a further confirmation. In Atropa, A. Belladonna typica and A. B. lutea were used, the fruit being respectively black and yellow. The first crossbred generation were all black (dominant). Owing possibly to self sterility, the offspring had to be fertilised by the parents: the general results however, confirmed the dominance of the black colour, and the resulting offspring obeyed the law, in so far that as resulting from a dominant fertilisation they were all black-fruited, while recessive fertilisation gave a mixed result.

Daturas with smooth and prickly fruits, demonstrated the prickly character to be the dominant one. In this case, however, some of the results pointed to a crossbred origin of one of the parents; characters presenting themselves which were not obviously present in either. This is the suggested explanation; but an alternative hypothesis, that of original variation, is cited, and there is no doubt whatever that further experience in this direction will reveal this as a disturbing factor in many cases. Despite the irregularities which occurred with Datura, the Mendelian law was confirmed in so far that the dominant type was the more numerous, while the ratio of results obtained by re-

Group of Clematis, grown by G. Jackman and Sons, Woking.

crossing with the parents closely agreed with expectations. With respect to Matthiola (Stock), the phenomena largely conform to Mendelian principles; the results, however, were too complicated to permit of an intelligible analysis in the space at command.

In any case, however, it is clear from these experiments that the Mendelian law, and his discoveries as regards the definite nature of certain characters, i.e., as separate transmissible factors, are of great interest to the selective cultivator, although it cannot be ignored that the intense care and long continued systematic observation requisite to obtain definite results could rarely be given; and furthermore, the far greater complexity of character which must exist in many highly cultivated and already repeatedly-crossed flowers, would render the deduction of the law from the observed results a task for a skilled mathematician rather than a plant breeder. None the less, however, are our thanks due for the light thrown on the underlying principles by joint production of Mr. BATESON and Miss SAUNDERS, and for the very clear manner in which their observations are recorded.

We have only to add that the whole subject is discussed in a little book published at the Cambridge University Press, under the title of *Mendel's Principles of Heredity*, by Mr. W. BATESON, who says that if a tenth part of the labour and cost now devoted to the collection and maintenance of species of animals and plants were applied to statistical experiments in heredity, the result would in a few years make a revolution, not only in the industrial art of the breeder, but in our views of heredity, species and variation. We have at last a brilliant method and a solid basis from which to attack these problems, offering an opportunity to the pioneer such as occurs but seldom, even in the history of modern science.

LORD REDESDALE.—Mr. FREEMAN MITFORD, famed in diplomacy, literature, and gardening, is henceforth to be known as Baron REDESDALE of Redesdale, in the county of Northumberland. We were privileged to give the portrait of the new peer in our issue for July 5, 1902, p. 4.

THE CARNATION SHOW.—Considering the lateness of the season, the Carnation show was surprisingly good. Moreover, it was held under the auspices of the Royal Horticultural Society in the Drill Hall, a more convenient place than the Crystal Palace for such a show. We are glad to see the special societies coming under the wing of the parent society. By so doing, the objections to the multiplication of small special societies are largely obviated. The quality of the flowers was generally admitted to be good. The cardboard collars and the dressed flowers are not quite done away with, but the tendency towards a more natural and a more attractive mode of exhibiting is surely, if slowly, making way. The luncheon at the Hotel Windsor was presided over by Mr. MARTIN SMITH, who made a sympathetic speech, and whose improved health was noted with great satisfaction.

THE MALCOLM DUNN MEMORIAL FUND.—Several of our correspondents have been anxious to know what had been done in the case of the DUNN Memorial Fund. The following letter from Mr. MURRAY THOMSON will explain this:—"In your issue of February 8 last you inserted a letter from me on this subject. It has now been arranged that the Royal Scottish Arboricultural Society is to retain the money collected by it, in order to create a DUNN Memorial in connection with arboriculture. The Royal Caledonian Horticultural Society and the Scottish Horticultural Association have united the funds collected by each of them, and have formed a "MALCOLM DUNN Memorial in Horticulture." They have appointed trustees to carry out the purposes of the Trust. These trustees are authorised to give prizes for the advancement and improvement of the science and practice of the culture, or for the successful culture of plants, flowers, trees, fruits, and vegetables, or otherwise for the advancement and practice of horticulture, as the trustees shall think fit; and it is further directed that these prizes may be given through the medium of any horticultural society or association in Scotland. The trustees have appointed me their Secretary and Treasurer, and I shall be glad to answer any communications in connection with the Trust. *P. Murray Thomson, 5, York Place, Edinburgh.*"

THE NEILL PRIZE IN HORTICULTURE.—We are informed by Mr. MURRAY THOMSON that at a meeting of the Council of the Royal Caledonian Horticultural Society held on July 16, the Neill Prize was awarded to Mr. DAVID MURRAY, gardener to the Marquis of AILSA, Culzean Castle, Ayrshire, who has been a most successful grower of fruits and vegetables.

IRISH MUSHROOMS AND BLACKBERRIES.—A lady correspondent of an evening contemporary draws attention to the magnificent specimens of Blackberries growing in the vicinity of the Lakes of Killarney, and the difficulty of getting them gathered. She states that an offer of 2*d*. per quart produced no harvesters; whilst great sheets of Mushrooms simply wasted away untouched. Possibly there are no available means of transport, and given these a market would have to be established.

RAMSEY ABBEY GARDENS.—In the *Peterborough Advertiser* for July 19, is an appreciative description of Lord DE RAMSEY'S gardens, at Ramsey Abbey, which, owing to the kindness of the noble proprietor, may be seen by the general public. Mr. F. SEABROOKE, the gardener, is complimented by the writer of the note upon the floral effects he has produced.

ARTIFICIAL MANURES FOR CHRYSANTHEMUMS.—M. TRUFFAUT, as a result of his chemical investigations, recommends the use of a manure containing:—

Sulphate of ammonia ...	30 per cent.
Sulphate of potash... ...	26 ,,
Double superphosphate containing 44 per cent. of acid...	40 ,,
Ordinary superphosphate containing 13–15 per cent. of acid	4 ,,
	100

APPENDICITIS.—Fifty years ago this name was not known in the medical world. The disease signified was not distinguished from ordinary peritonitis. M. LANNELONGUE in the *Comptes rendus* shows that some Egyptian mummies show traces of the disease. The same observer enumerates among the causes of the malady, the presence of microbes as well as of intestinal worms, the eggs of which exist in impure water, and in uncooked or unwashed fruit or vegetables.

THE ARAUCARIA AT DROPMORE.—It is with a feeling of consternation, akin to that produced by the collapse of the Campanile at Venice, that we have heard of the death of the famous specimen of Araucaria imbricata at Dropmore—the noblest of its kind in the country. It would not greatly surprise us if we heard of the appearance of the shade of old PHILIP FROST on the scene of the disaster.

"GUIDE TO THE BOTANIC GARDENS, MELBOURNE."—We have received a copy of the authorised *Guide to the Botanic Gardens, Melbourne*, which is likely to be of use to all visitors. A brief history of the gardens is given, and there is a sort of bird's-eye view over part of the grounds. Add to this the route-map, and that which indicates recent additions and improvements, and a serviceable little book is obtained, from which readers may see the progress made and the work achieved in the gardens.

SALE OF POISONS.—Several cases have lately occurred wherein seedsmen and other traders have been fined for contravening the terms of the Pharmacy Act (1868). That Act was passed for the protection of the public, and imposes on druggists who deal only with small quantities of sundry scheduled poisons, certain regulations with which they must comply before effecting a sale to a customer. But other tradesmen who handle very much larger quantities of poisonous substances appear to think that, because those substances are not intended for consumption by human beings, but only as weed-killers, insecticides, and the like, that they are exempt from the restrictions imposed on the druggists. Recent magisterial decisions have, we believe, in all cases shown that this is a mistake. While the law remains as it is, law-abiding dealers should for their own sakes comply with the regulations, and should in the public interest adopt all reasonable precautions for the prevention of accidents. To send out concentrated poisons wholesale, without any indication of the nature of the substance, is to court disaster.

HYDRANGEAS.—Mr. SPEED sends us from Penryn Castle, Bangor, two heads of Hydrangea, one of the ordinary rose colour, the other the deepest blue we have ever seen. This was grown in a soil containing much natural leaf-mould.

"AUSTRALIAN GRASSES."—His Majesty KING EDWARD VII. has been graciously pleased to accept a copy of *Australian Grasses*, by FRED. TURNER, F.L.S., of Sydney, New South Wales.

YORKSHIRE NATURALISTS' UNION.—The 167th meeting will be held at Sedbergh for the investigation of Baugh Fell, from Saturday, August 2, to Monday, August 4. The object of the meeting is to make as complete an investigation as possible of the slopes of Baugh Fell, and the gills running up into it; and it is requested that members on this occasion will confine their attention to the mountain itself, and its immediately encircling valleys, Rawtheydale and Garsdale. Owing to the inaccessibility of Sedbergh, and the distance from it of the ground to be covered, it will be necessary for those attending to spend the week-end in the district.

The District.—Mr. W. ROBINSON writes that Baugh Fell (it should be Barfell) is, next after Ingleborough and Penyghent, perhaps the most conspicuous of the great Pennine chain of hills of which it is a distinguished outlier. It forms a striking feature in the landscape as one approaches Sedbergh by railway, and gains much in grandeur by contrast with the distinctly different scenery of the adjoining

older domed-shaped hills of Silurian age from which, however, it is severed by a great fracture in the earth's crust, which runs along its lower slopes roughly parallel with Cautley Road.

GUEVINA AVELLANA.—Mr. HOPE sends us from Greenway, Devonshire, a branch of this noble Proteaceous tree, which there attains a height of 20 feet. The foliage is highly ornamental, the stalked alternate leaves are more than a foot in length, broadly lanceolate, imparipinnate, with about twelve or fourteen pinnæ, of which the two or three lowermost pairs are again pinnate. The ultimate segments are leathery, glabrous, rounded at the base, ovate-oblong, acute, coarsely and remotely toothed. The petioles and their subdivisions are more or less covered with coarse blackish hairs. The tree is a native of Chili, where its seeds are eaten as nuts.

INFLUENCE OF COLOURED GLASSES ON PLANTS.—The idea that stove and greenhouse plants might show differences in development if the glass under which they were grown was variously coloured, is not a particularly new one. But we owe to M. ED. ZACHAREWICZ some further information on the subject, published in a recent number of the *Journal de la Société Nationale d'Horticulture de France*. At Vaucluse, Avignon, several varieties of Strawberries were, for the sake of experiment, grown, some under glass of one colour, some under that of some different hue. The general results obtained are summarised as follows :—

1. Orange glass produces more luxuriant vegetation, but to the detriment of the fruit, its size and earliness.

2. Under ordinary glass the fruit is finest and earliest.

3. Under violet glass a larger amount of fruit is obtained, but to the detriment of its size, quality, and earliness.

4. Red, blue and green glasses are each detrimental to the vegetation of the plants.

Therefore, for the glasshouse cultivation of plants with green foliage, orange glass may be recommended, while for the production of fruit the ordinary white glass should be used. These results are interesting, but not specially surprising, since the unaltered light of the sun might well be supposed more favourable to vegetation than any in which one particular colour element largely predominated.

CANADIAN ASH (FRAXINUS SAMBUCIFOLIA).—A short time since a morning paper stated that contracts for Ash timber, designed to supply oars for the boats of the British navy, had been given to contractors in the United States—the reason assigned for this being that the Ash timber of the States was that best suited for the purpose. As this statement has not been challenged, it seems to be necessary to state here that the facts are all the other way. Northern-grown timber is ever to be preferred to that grown in the south, for obvious reasons. This is evident to all thinking men. In regard to the elasticity of Canadian Ash, transverse strength, and resistance to longitudinal crushing, it is the best wood in these very characters tested at RANSOME'S works, Chelsea, in 1886. In that summer, it may be remembered, Mr. RANSOME submitted all colonial and foreign woods to these tests, the Canadian woods being furnished be Mr. M. MACOUN, naturalist to the Geological Survey, Ottawa, under Sir C. TUPPER'S instructions, for the test. It might be worth while for the Admiralty authorities to procure Mr. RANSOME'S results as recorded by him at the time, and so give our business to our friends.

NATURE-STUDY EXHIBITION.—The Nature-Study Association opened its exhibition at the Royal Botanic Gardens, Regent's Park, N.W., on July 23. The Duke of DEVONSHIRE presided. The exhibition will remain open till August 5 inclusive.

CONFERENCE PROGRAMME.

The Chair will be taken on each occasion at 3 P.M.

Thursday, July 24.—Chairman : The Right Hon. R. W. Hanbury, M.P., President of the Board of Agriculture. Address on "The Study of Nature," by the Lord Avebury, D.C.L., F.R.S. Selected speakers : "How the County Councils may encourage Nature-Study," Mr. H. Hobhouse, M.P. ; "The Facilities for Nature-Study," Prof. Geddes, University College, Dundee ; "Seasonal Studies in Natural History," Prof. J. Arthur Thomson, Marischal College, Aberdeen ; "Local Museums as aids to the Teaching of Nature-Knowledge," Mr. H. Coates, F.R.S.E.

Friday, July 25.—Chairman : The Lord Strathcona, G.C.M.G., High Commissioner for Canada. Address on "Nature-Study in Elementary Education," by Prof. C. Lloyd Morgan, F.R.S., Principal, University College, Bristol. Selected speakers : "How to bring Children into touch with Nature," Mrs. Franklin, Hon. Sec. Parents' National Educational Union ; "Nature-Study in Urban Schools," Mr. H. Major, Inspector to the Leicester School Board ; "The Teacher as Observer," Miss Mary Simpson, The Yorkshire College, Leeds ; "Trees as a means of Nature-Study," Mr. John Evans, H.M. Sub-Inspector.

Tuesday, July 29.—Chairman : The Lord Reay, G.C.S.I., G.C.I.E., Chairman of the London School Board. Address on "Visual Instruction" (illustrated), by Prof. Bickmore, Natural History Museum, New York. Selected speakers : "Nature-Study in relation to Rural Pursuits," Mr. G. Herbert Morrell, M.P. ; "The Proper Attitude of the Teacher," Mr. A. D. Hall, Principal, S.E. Agricultural College, Wye, Kent ; "Nature-Study in Elementary Schools from the Teacher's standpoint," Mr. G. H. Rose, Headmaster, Caterham Board School.

Thursday, July 31.—Chairman : Sir George Kekewich, K.C.B., Secretary to the Board of Education. Address on "Nature-Study in Colleges and Higher Schools," by Prof. Miall, F.R.S. Selected speakers : "Nature-Study in Girls' Secondary Schools," Miss Mary Gurney, Member of the Council of the Girls' Public Day School Company ; "Plant Life as Nature-Study," Mr. Scott Elliott, West of Scotland Technical College, Glasgow ; "School Gardens," Mr. T. G. Rooper, H.M.I. ; "Geology as a Branch of Nature-Study," Prof. Grenville Cole, Royal College of Science, Dublin.

Friday, August 1.—Chairman : The Right Hon. Sir W. Hart-Dyke, Bart., M.P. Address on "The Training of Teachers in Nature-Study," by the Rev. Canon Steward, Principal, The Training College, Salisbury. Selected speakers : "The Relation of Nature-Study to School Work and to the Home," Sir Joshua Fitch, LL.D. ; "Nature-Study as an Element of Culture," Mr. M. E. Sadler, Director of Special Enquiries to the Board of Education ; "School Rambles and the Training of Teachers," Mr. J. H. Cowham, The Training College, Westminster, S.W. ; "The Present Work of the County Councils," Mr. Austin Keen, President, Association of Organising Secretaries.

THE WOLVERHAMPTON FLORAL FETE.—Messrs. BLACKMORE & LANGDON, of Tiverton-on-Avon, inform us that they were awarded a Gold Medal for their exhibit of Begonias at this show.

CANKER IN APPLE TREES.—The following conclusions are arrived at by Mr. HASSELBRING, and published in the *Bulletin No. 70 of the University of Illinois Agricultural Station*. The common term "canker," includes all diseases involving portions of the living bark of trees. These may be due to different causes. Several canker diseases caused by fungous parasites are known in the United States. The most common diseases of this kind in Illinois are the New York Apple-tree canker, caused by the black rot fungus, and the Illinois Apple-tree canker, caused by Nummularia discreta. The Illinois Apple-tree canker occurs on the large limbs and trunks of Apple trees. It produces extended blackened areas within which the bark cracks and finally crumbles away. This always results in the death of the affected limb. The fungus causing the canker is a wound parasite, gaining entrance into the tree through wounds caused by pruning or by accidental injuries. The best means of preventing the disease is to avoid as much as possible all injury to the bark, to prune properly, and to paint wounds with an antiseptic solution. Badly diseased limbs should be cut and burned.

SOUTH SHIELDS AND NORTHERN COUNTIES CHRYSANTHEMUM SOCIETY.—After an interval of five years without any show being held, this society is now issuing a schedule of an exhibition to be held at a date to be fixed later on in the year. We note in the prize list a prize of £6 and a Coronation Silver Cup, value 15 guineas, presented by the President of the Society, JAMES BROADHEAD, J.P., to be awarded to the winner of the 1st prize in a competition of thirty-six Japanese blooms in not less than eighteen varieties, and not more than two of each variety. A Coronation Silver Cup, value 5 guineas, given by Mr. A. PURVIS, goes with the 2nd prize in the same class. Another Cup of similar value presented by Mr. C. F. SUTCLIFFE, will be awarded, together with £5 in money, to the exhibitor of the best group of Chrysanthemum plants ; and one of 5 guineas presented by Mr. T. N. ALEXANDER, goes with the 1st prize for eighteen Japanese cut blooms. The schedule contains a number of other very liberal prizes of money, Cups, and Medals, and they will doubtless do much in instigating a lively competition in the various classes, which in addition to Chrysanthemums include vegetables, the productions of amateurs. The Honorary Secretary is Mr. BERNARD COWAN, Harton, South Shields.

FLOWERS FOR FOREIGN PARCEL POST.—Mr. HENNIKER HEATON, M.P., who has for long distinguished himself in the matter of postal and telegraph reform, is having a tilt just now with the Postmaster-General in continuation of the same. In reference to the carriage of flowers by parcel-post, he says, that "A few years ago baskets of flowers could be sent at a low rate from the South of France to England in the winter months. The Department stopped this kindly feeling and agreeable traffic for no reason whatever. Surely, it would be a kindly act to restore the regulations under which these beautiful baskets of flowers were sent to friends in England." . . . . "The English parcel-post is still open to improvement," says Mr. H. HEATON ; "a man the other day wrote to me that he sent a parcel of Beans, value 9*d*., and the charge for delivery was 1*s*. 1*d*." It would appear that the parcel-post with America still requires opening up ; doubtless, the florist would benefit, with others, in this reform. We believe that "everything comes to him who waits." Mr. HEATON began his agitation on this matter twelve years ago.

MR. BURBANK AND HIS WORK.—A series of articles is in course of publication in *Sunset*, a Californian journal, detailing the more prominent of this great hybridist's labours in cross-breeding. Among other things he has taken in hand, the wild Prunus maritima, which has the merit of growing anywhere, and producing abundance of fruit of poor quality. By fertilising the flowers with the pollen of some Japanese forms, the defects have been removed and the fruits greatly improved. The development of a race whose flowers are immune from the effects of spring frosts has also been effected. To show the disappointments the hybridiser has to encounter, and we may say the courage of the raiser, it may be added that in one year 65,000 (sixty-five thousand) seedlings were destroyed, as no improvement on what already exists.

PUBLICATIONS RECEIVED. — Botanical Department, Trinidad: *Bulletin of Miscellaneous Information*, April, 1902. Contents: Work of Earth-worms, Hevea Brasiliensis, Orange Stocks, Roses on their own Roots, Cacao Dryers, &c.—*Annual Administration Report of the Forest Department of the Madras Presidency* for the twelve months ending June 30, 1901:—"The year was one of steady progress in all branches of forest administration. With the practical completion of the work of selecting lands for reservation, forest officers have been able to devote their time and attention more fully to conserving the reserved forests and bringing them under systematic plans of working. For the first time in its history the Department has attempted the organised exploitation of timber on a large scale, with results that are, on the whole, encouraging."—*Eighth Annual Report of the Fruit Experimen Stations of Ontario*, 1901: in every way satisfactory, and showing much increase of work and activity, and consequent results.—*Thirty-third Annual Report of the Fruit Growers' Association of Ontario*, 1901. The yearly meeting "excelled in attendance and interest any meeting ever held in its history, and furnished an unusual amount of valuable information for fruit growers." Various crop reports and original papers are included in this publication.—From the Victorian Government Agricultural Department Offices, Leadenhall Street, E.C.: *The Australian Colony of Victoria*. A little pamphlet with letterpress and illustrations setting forth the advantages offered for colonists by this Colony. The information is practical and, of course, absolutely trustworthy. — *The Queensland Agricultural Journal*, April. Full as usual of papers and notes on various branches of agriculture, with special reference to the needs of the district.—*Minnesota Botanical Studies*, Index number, May. Contents: Lichens of North Western Minnesota, Bruce Fink; Corallinæ veræ of Port Renfrew, K. Yendo; Observations on Pterygophora, Conway MacMillan; and title, contents, and index.—*Bulletin du Jardin Impérial Botanique de St. Pétersbourg*. Tome II., Livraison 3. Avec 6 figures dans le texte. The more important articles are written in Russian. —*Proceedings and Journal of the Agricultural and Horticultural Society of India* for January — March 1902. "The Council are of opinion that the present state of the gardens and condition of finances reflect most creditably on the hard work and zeal of the Secretary (Mr. Lancaster) and his assistants, but for whose untiring efforts the excellent results reported could not have been obtained.—*The Agricultural Journal of the Cape of Good Hope*, April 24, contains an obituary notice of Mr. J. P. de Waal, long manager of the Government wine farm at Groot Constantia; and also the usual notes and reports.—*The Agricultural Gazette of New South Wales*, April. Among the contents are: Useful Australian Plants, Deyeuxia nivalis, by J. H. Maiden; Sandarac Resins from Australian Woods, by T. A. Henry; Experimental Wheats, by F. Coleman; Flax-growing, Tomato Blight, &c.—*Journal of the Department of Agriculture of Western Australia*, April, contains Notes on Indian Oranges, the Season's Fruit Crop, and other appropriate subjects.—*The Journal of Agriculture of Victoria*, April. In addition to papers dealing with the dairy and live stock, we find here articles on Viticulture and on Vine Seeds, by R. Dubois; Autumn and Winter Treatment of Orchard Lands, C. B. Luffmann &c.—From the U. S. Department of Agriculture: *Observations on the Mosaic Disease of Tobacco*, by Albert F Woods, Pathologist and Physiologist, May 15. A useful manual, illustrated with plain and coloured plates.—*Bollettino Tecnico della Coltivazione dei Tabacchi*, pubblicato per cura del R. Istituto Sperimentale di Scafati Salerno. Illustrated with plates and tables.—*Meteorological Notes and Remarks upon the Weather during* 1901, *with Effects upon Vegetation*, by James Whitton, Superintendent of Parks, Glasgow. "Regarding the general effect upon vegetation, the atmospheric conditions of 1901 were distinctly favourable, so far as the neighbourhood of Glasgow is concerned."—*Hints on Planting Roses*, by a Committee of the National Rose Society. Third edition, with revised list of choice Roses, and an illustration of Mr. Mawley's garden at Berkhamsted. A handbook of useful information for amateur and reminders for professional growers. Obtainable from the Society's Secretary, Mr. Mawley, Berkhamsted, Herts.—*Agricultural Bulletin of the Straits and Federated Malay States*, April. Edited by H. N. Ridley. Contents: Timbers of the Malay Peninsula, Draining Land for Cocoa-nut Plantations, Dr. Sherman's Report on Gutta Percha, Planting in British Central Africa, Consular Report on German East Africa, Planting and Science in Ceylon, and Notes.—From the U. S. Department of Agriculture, Division of Entomology, Bulletin No. 32. New Series. *Insect Enemies of the Pine in the Black Hills Forest Reserve*. An account of the results of special investigations, with recommendations for preventing losses. Prepared under the direction of the Entomologist, by A. D. Hopkins.—From the South-Eastern Agricultural College, Wye, Kent. *The Nature-Study Journal*, No. 3. Contents: An Hour with the Balance, Metamorphosis of Frogs, Glance at a Bee Hive, and Flower Shapes.—*Bulletin of the Botanical Department, Jamaica*, April. Contents: Tobacco, Cultivation and Curing; Coffee Fermentation, Cheer Pine, Bananas, Coffee, Cocoa in Costa Rica, Variation in Colour of Grapes, Chinese or Dwarf Bananas, &c.

LAYIA GAILLARDIOIDES.*

MR. GUMBLETON kindly sends a specimen of this pretty Californian annual, with orange-yellow flowers, whose general appearance is indicated in Mr. Worthington Smith's drawing. It was originally referred with doubt by Hooker and Arnott, in the *Botany of Beechey's Voyage*, to the genus Tridax, but Asa Gray and subsequent writers place it under Layia. Lay was the naturalist in Beechey's voyage.

FIG. 23. LAYIA (TRIDAX) GAILLARDIOIDES.

THE ART OF TABLE DECORATION.

(*Continued from p.* 34.)

SUITABLE PLANTS.—Among exotic and hardy Ferns are many beautiful and valuable auxiliaries for this work, but for the purpose of this paper I will only mention two, Adiantum cuneatum and A. Farleyense. The former, of course, is indispensable, as wherever flowers are arranged, in whatever form, there also are its fronds called into requisition, and as a table plant, it is amongst the most serviceable and beautiful. A. Farleyense is the most elegant and beautiful of all the Adiantums. This, when placed in low gold, silver, or glass bowls, with its charming fronds of light green colour hanging loosely over the sides, and some of them resting gracefully on the cloth, is difficult to surpass in interest or beauty; and the same may be said of it when elevated into a higher and more conspicuous position. I have sometimes used it on tall ornaments of gold, flanking a bold centre-piece of brilliant cut Roses, with striking effect, its handsome fronds descending down the side of the tripods and resting on its supports, as well as furnishing a rich crown of greenery to the apex of the ornament.

So far, I have dealt with the plants and flowers suitable for the adornment of the dining-table of the rich and well-to-do; most of them being exotics, and therefore articles of luxury beyond the reach of those of limited means.

Those who are unable to avail themselves of the services of those lovely exotic flowers which are cultivated in costly glasshouses, need not despair of having suitable and beautiful materials at hand wherewith to brighten and decorate their tables and homes, especially in the summer months, for we have only to go to the field, the bank-side, the hedgerow, the shrubbery, or the old-fashioned garden, with its wealth of hardy plants, to find material in rich abundance and of endless variety, to satisfy the most exacting of decorators.

Owen Thomas.

(*To be continued.*)

* *Layia gaillardioides*, Hooker and Arnott, *Bot. Beechey*, 357.—"A foot or two high, loosely branched, hispid and glandular . . . leaves, lanceolate or linear, the lower commonly pinnatifid; heads, pretty large; rays, 12 to 20, orange-yellow, cuneate-oblong, twice or thrice the length of the disc; disc-achenes, silky pubescent; pappus dull white or rather rusty: the erect and not abundant villous hairs all straight and considerably shorter than the bristles." A. Gray in *Botany of California* (1880), vol. i, 369; and in *Synoptical Flora of North America*, vol. i, part 2 (1884), p. 315; Hoffmann in *Engler and Prantl die natürlichen Pflanzenfamilien*, iv. Teil, 5 abteilung (1894), p. 250. Tridax? *Bot. Beechey*, 148, common in W. California; first collected by Lay.

HOME CORRESPONDENCE.

HAILSTORM AT PADDOCKHURST. — I send you a few specimens of vegetables, showing effects of the disastrous hailstorm which visited us on the afternoon of June 10, at 4 P.M., accompanied by wind, lightning, and thunder. Onions, Beetroot, Lettuces, Potatos, and all green crops, were riddled as with bullets. Apples and Strawberries shared the same fate. One-half of the kitchen garden was not visited by the storm, and the line could be traced to a yard. The storm passed to the south, and on neither side of us, east or west, can I hear of any similar destruction. Cottagers' gardens near here, and in the same direction, have suffered badly; little gardens that once looked well are now a wreck. The hailstones were as large as good-sized marbles. At 5.30 P.M. there were between 2 and 3 inches of hailstones under the north walls, and it fell off the eaves of the houses like snow in winter. *A. B. Wadds, Paddockhurst Gardens, Worth, Sussex.* [The injured specimens quite bear out the above facts. Many of our readers know by unhappy experience what disappointment is caused by such a visitation ED.]

LIRIODENDRON TULIPIFERA.—I should be much obliged to any reader of the *Gardeners' Chronicle* if they will say whether they know of a larger specimen of the above than the one growing here which is 80 feet high, and 14 feet in circumference at 4 feet high from the base or ground line. It is a magnificent specimen, and is growing near the banks of a lake, within 10 yards of the water. The banks are one mass of roots, so it is evidently fond of moisture. The tree stands in a most interesting position, and is of fine shape. Has anyone worked up the timber of this species? I imagine it may take a good polish, but it would not be lasting, as it suddenly becomes very light. A large tree was taken down last winter, and cut up. It looks very white, has a rather nice vein in it, but the planks have become exceedingly light. *W. A. Cook, Erlestoke Park Gardens.* [Sargent in his

Silva says, "The wood is light and soft, brittle and not strong; easily worked, and does not easily split or shrink. . . . The wood . . . known as yellow poplar and as white wood, is one of the most valuable products of the American forests, being used in construction for the interior of houses, in boat-building, and for shingles, pumps, and wooden ware. Under favourable circumstances it grows in its native country to a height of 160 to 190 feet." ED.]

THE BOOK OF VEGETABLES.—My attention has been drawn to a review on p. 16 of Mr. G. Wythes' *Book of Vegetables*, constituting one of the series of garden handbooks which I am privileged to edit. I merely wish to protest against the growing habit of reviewing books which the reviewer has not taken the trouble to read. As illustrating the need for my protest, I will quote one or two from your "objections" to that part of the book devoted to the cookery of vegetables. You say: "Are we right in slicing our French Beans quite thin, and then extracting much of their flavour by boiling them in large quantities of cold water? Again, Kohl-Rabi should not be cooked similarly to the Turnip, and sent in a mashed state to table, there being several much more tasty ways of cooking the root. Celeriac makes a delicious salad when cooked, but it is not so much as mentioned; and housekeepers will protest against the directions for cooking Asparagus." Would the reader believe that Asparagus is not spoken of in the book except in this sentence from the prefatory note: "The vegetables dealt with in the present volume are those most commonly grown in English gardens. Vol. I. of the present series dealt with Asparagus, Celery, Celeriac, Seakale, Salsafy, and Scorzonera." This quotation may also explain the absence of directions for making Celeriac salad. With reference to the other two objections of your reviewer, I again quote from the book reviewed: "Turnips should be boiled whole . . . and served entire with some simple butter-sauce." "Neither, unless they are very old, should French Beans be sliced." Further comment is unnecessary. When one has devoted many years to the study of a subject, however, it is a little irritating that any casual reviewer should be allowed to say in print all sorts of absurd things about one's alleged conclusions without even spending the necessary hour in reading one's record. I trust that you will, in equity, allow space for this letter. *Harry Roberts, Hayle, Cornwall.* [We do not admit the validity of our correspondent's protest. The book in question was placed in the hands of at least two reviewers, and that they read those portions of the book in which each was individually an expert, we know of our own knowledge. We must, however, express our regret for a slip of the pen. For "Asparagus" we should have written Cauliflower. At p. 74 we are told that "Broccoli and Cauliflower should be placed in the saucepan flower downward." It is our turn to protest. ED.]

GILLIFLOWERS (p. 29).—In the very interesting article "Concerning Gilliflowers," the writer says that he cannot find any mention of the flower having been used to flavour any liquor. If he will look at Blount's *Antient Tenures*. p. 70, S. V. Stony-Aston, he will find a mention of "Sextarii vini gariophilati," which Blount translates: "A Sextary of July-Flower wine." The date is 1280. *Henry N. Ellacombe.*

EURYCLES SYLVESTRIS.—I enclose a scape and umbel of a bulbous plant which came to me some months ago from S. Africa as "Eurycles sylvestris." Will you kindly state if this name is correct? Three bulbs came to hand, and each has flowered, the flowering immediately preceding the leaves. The finest umbel bore twenty-four flowers, and these individually last for a fortnight or three weeks, so that the umbels are in beauty for about five weeks. The flowers are delicately scented and charming in form. One would imagine it to be a most valuable plant if it can be ripened up and flowered at home in the way these imported bulbs have flowered, the flowers lasting so much longer than those of Pancratiums, Crinums, and the like. The bulb from which the scape sent has been cut, is bearing two scapes about 2 feet high; the leaves 10 inches by 8 inches, and are very similiar in form to those of Funkia grandiflora, and the leaf stems are 9 inches long. I have grown the plant with Richardia Elliotiana, and the treatment has apparently suited it. *J. C. Tallack, Shipley Hall Gardens, Derby.* [We believe the plant to be correctly named. ED.]

RHODODENDRON NUTTALLI.—It may interest some of your readers to know that R. Nuttalli, of which "S. W. F." speaks in his "Notes from the South-west," in your last week's issue, had five beautiful trusses of flower on it in June last. The Hon. John Boscawen, in whose garden the tree flowered, informs me that the tree received no protection other than that obtained from the wall against which it is grown. I have known R. Nuttalli, having been grown in this county (Cornwall) in the open for some years, but have never known one to have flowered before, the spring frosts having killed the flower-buds before reaching maturity; but in spite of last winter having been a more trying one to plant-life than usual, the flower-buds of this plant managed to survive, and presented a glorious sight on June 13. *A. T. B.*

THE GREAT ARAUCARIA AT DROPMORE.—Gardeners and others who have visited Dropmore will be sorry to learn that the large specimen there of Araucaria imbricata is dead. On taking charge here in the autumn of 1900, I noted many branches turning brown at the points, and thinking the dry, hot summer might have had something to do with this, we had it well watered, but to no purpose. No remedy that was tried has done any good, and it is quite dead. Frost writes of this tree that it was supposed to have been purchased at a sale at the Chiswick Gardens in 1827. The site where it was planted was once a gravel-pit, and was filled up when the lake was made. Happily, Abies Douglasii, planted by Frost, thrives, and is making splendid growth this season. *Chas. Page, Dropmore Gardens, Bucks.*

STRAWBERRIES MONARCH, LEADER, ETC.—The experience of "R. G., Whitfield," in regard to Monarch, is similar to my own. When it was first offered by Messrs. Laxton, I planted a small bed of this Strawberry, and the second season afterwards the plants were all "blind." I was greatly disappointed, but runners were taken from the same bed, and since that time the plants have been most prolific, so much so that I purpose growing it more largely. Monarch is of good flavour, having bright glossy fruits not extra large, but with firm flesh; one of the best for packing. I consider Leader one of the best of Laxton's Strawberries. I do not think there is a variety to equal Leader for cropping (including the first season after planting), size, and flavour. Strawberries vary considerably in different soils, and I would suggest to your correspondent, "W. P. R., Preston," that he give Monarch and Leader a further trial. The soil at Poltimore is of a heavy character. *T. H. Slade, Poltimore Gardens, Exeter.*

—— It would be interesting and useful to have the opinion of gardeners generally of the Strawberry "Monarch," with a view to proving if the percentage of blind plants in this variety is very large. I grew it in Kent on a stiff, heavy soil, with satisfactory results, there were no blind plants, and it produced fairly good crops of large-sized berries of excellent flavour. This was from runners bought cheaply, and planted in April in the previous season. In August, 1900, we purchased fifty plants of the same variety of Messrs. Jas. Veitch & Sons, Chelsea. The plants were all one could wish them to be, but the results last year and this have been disappointing. A good plot of ground was well manured and trenched, and on August 17 three varieties were planted, Monarch, President, and Fillbasket. The latter variety gave us a wonderful crop in the first season; President did only moderately well; Monarch yielded very few fruits, but these were large. Fifteen per cent. were blind, and the plants have yielded no fruits again this year. I intend to discard Monarch altogether on this light sandy soil, and also Leader, which is of very poor quality here, although a very heavy cropper. If its quality is generally as poor as it is here, it will soon be discarded generally, ripening as it does when there is no lack of fine flavoured Strawberries. Leader is decidedly inferior to Fillbasket, except in size. *E. Parslow, Shadwell Court Gardens, Thetford.*

INCOME-TAX REPAYMENTS.—The Chancellor of the Exchequer stated, in reply to Sir John Leng, that "any lessening of the cost of the war should go in reduction of taxation." Taxpayers will not, however, have the benefit of any such reduction during the present financial year; and having regard to the high rate of the income-tax, which presses very hardly upon persons with comparatively small incomes, special care should be observed in examining the notices of charge which will shortly be delivered. If the amount of the assessment is felt to be excessive, notice of appeal should at once be given, and accounts prepared in accordance with the requirements of the Inland Revenue authorities. By this course, the taxpayer may not only succeed in getting the current year's assessment reduced, but, if so entitled, may claim repayment of the tax overcharged last year. Many persons fail to obtain the relief to which they are entitled because they do not furnish accounts in proper order. This is a very simple matter if a proper cash account is kept, which is quite easy if *The Taxpayers' Cash Book* is used. Thousands of persons pay income-tax for which they are not liable, more especially those whose incomes are derived from rents, dividends, and interest. With few exceptions, claims for the last three years can now be made for repayment of tax over-charged, where the income has not exceeded £700 per annum, even when the dividends are said to be paid "free of income-tax." We shall be glad to advise readers of the *Gardeners' Chronicle* without charge whether or not they are entitled to any repayment upon receipt of full particulars of their income, and a stamped addressed envelope for reply. *The Income-tax Adjustment Agency, Limited, Poultry, London, E.C., July 23, 1902.*

GENTIANA ACAULIS AS AN EDGING PLANT.—Most gardeners will agree that no live edging is better than Box for garden walks; but where Gentiana acaulis succeeds, as it does here, it can be used with the best effect both as an edging to gravel walks and to beds on the turf. The plant is largely used here for this purpose, the border of it measuring from 4 to 12 inches in width, and altogether amounting to over 600 yards in length. When planting G. acaulis as an edging to gravel walks, we raise the border 1½ in. above the gravel, and plant very firmly, besides making the soil compact, which is one of the secrets of success. This enables us to use weed-destroyers in the same manner as when applying it alongside of verges of turf. The soil is a strong loam resting on chalk. *John Allsop, Dalton Hall Gardens, Beverley, Yorks.*

CEDAR OF LEBANON (p. 31).—I should like to know the authority for the statement that Dr. Uvedale's Cedar at Enfield was "the first Cedar of Lebanon introduced into this country." *H. N. Ellacombe.* [The first authenticated notice of the Cedar as cultivated appears to relate to that at Chelsea (1683):—"A similar claim to being the oldest tree in Britain, and also to having been planted by Queen Elizabeth, has been set up on behalf of an old tree in front of Enfield Palace, known as the Enfield Cedar; but its

dimensions are even less than those of the Hendon tree. In 1788 it was 45 feet 9 inches high, though 9 feet had been broken off by the high wind of 1703. In 1793 it measured 12 feet in girth at 3 feet from the ground; and in 1809, at 3 feet 10 inches from the ground, its girth was 13 feet 1 inch. In 1821 the girth was 19 feet 9 inches at 1 foot from the ground, and 64 feet 8 inches in height. In 1835 it was 15 feet 8 inches at 5 feet from the ground, and its height in the same year was 64 feet 8 inches. In 1849 it measured 19½ feet in girth. But besides the doubt suggested by its minor dimensions, there is much stronger traditional evidence in favour of its having been planted by Dr. Uvedale. Dr. Uvedale was born in 1642; he was Master of the Grammar School at Enfield about the time of the great plague (1665), and he died in 1722. He was a great florist, and is said to have devoted so much of his time to his garden as to have been threatened with removal from his situation on that account by the authorities who had appointed him. There is a tradition that one of Dr. Uvedale's scholars who travelled, had a commission from the Doctor to bring a plant of the Cedar of Lebanon from Mount Lebanon, and that he brought a seedling which has grown into the tree now standing:" Murray, in *Pinetum Britannicum*, art. Cedrus, p. 32. "The Enfield Cedar must be one of the oldest, if not the oldest, tree of the kind in the country, having been planted somewhere between 1662 and 1670:" Veitch, *Manual*, ed. 2, p. 421.]

COLUTEA ARBORESCENS (BLADDER SENNA).—This is a common shrub to many, and it thrives in any kind of soil. When in flower in June it is very showy, with its thickly clustered yellow pea-shaped flowers. The flowers are succeeded by large bladder-like seed-pods or vessels, which are very ornamental. *W. A. Cook, Erlestoke Park Gardens, Wiltshire.*

SOCIETIES.

ROYAL HORTICULTURAL.

JULY 22.—The usual fortnightly meeting of the Committees of this society was held on Tuesday last, in the Drill Hall, Buckingham Gate, Westminster. The scene in the Hall was distinctly an unusual one, owing to the whole of the centre being occupied by the National Carnation and Picotee Society's show, which was held in conjunction with the meeting of the R.H.S. Of the Carnation show, a full report is given below. The flowers generally were smaller than are usually seen at the society's shows, which we may add for some years past have been held at the Crystal Palace. Nevertheless there were some very good ones amongst them, particularly those from the President, Mr. MARTIN R. SMITH, Mr. WELLESLEY, Mr. DOUGLAS, &c.

Reverting to the R.H.S. exhibits, Orchids were very few, and the Orchid Committee only recommended a First-class Certificate to Cattleya Wavriniana, Wigan's variety, shown by Sir F. WIGAN, Bart.

THE FLORAL COMMITTEE recommended Awards of Merit to Maranta insignis, from Messrs. BULL & SONS, Rose Field-Marshal, from Messrs. W. PAUL & SON, and Rose Ben Cant, from Messrs. B. R. CANT & SONS.

THE FRUIT AND VEGETABLE COMMITTEE recommended a First-class Certificate to Strawberry "Givon's Late Prolific," from H. STURGIS, Esq.; and an Award of Merit to Strawberry The Khedive, from Messrs. JAS. VEITCH & SONS.

In the afternoon a lecture upon the vegetation of the Island of Malta, illustrated by lime-light views, was given by the Rev. Prof. GEO. HENSLOW.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. R. Dean, C. T. Druery, H. B. May, Geo. Nicholson, Jas. Walker, G. Reuthe, W. Howe, C. R. Fielder, Chas. Dixon, C. J. Salter, C. E. Pearson, R. C. Notcutt, W. P. Thomson, E. H. Jenkins, M. J. James, Geo. Paul, H. J. Cutbush, Jno. Jennings, and H. Turner.

Mr. J. EDWARDS, Herbert Street, Blackley, Manchester, exhibited a very much crested Athyrium, A. p. f. var. ramosissimum lineare.

Messrs. W. PAUL & SON. Waltham Cross Nurseries, Herts, exhibited great sprays of Waltham Rambler Rose of the multiflora type, with single pink flowers.

Messrs. B. R. CANT & SONS, Colchester, exhibited some fine bunches of Roses in two dozen varieties, Mrs. W. J. Grant being especially good, and also Ben Cant, which is described under "Awards" (Silver-gilt Banksian Medal).

Mr. M. PRITCHARD, Christchurch Nurseries, Hants, showed a group of hardy flowers in which varieties of herbaceous Phlox were conspicuous; and there was a choice selection of other species now in flower (Silver-gilt Flora Medal).

Messrs. BARR & SONS, King Street, Covent Garden, London, W.C., exhibited a choice lot of hardy flowers, including Sweet Peas, Nymphæas, Delphiniums, Gladiolus, &c. (Silver Banksian Medal).

Messrs. W. CUTBUSH & SONS, Highgate, made an imposing display of Carnations in pots, showing very healthy, well cultivated plants. The prominent varieties included new and choice forms of the Souvenir de la Malmaison type; also Cecilia in very good condition, and others (Silver-gilt Banksian Medal).

Messrs. JOHN PEED & SONS, Roupell Park Nurseries, West Norwood exhibited a group of Carnations in pots, including varieties of Souvenir de la Malmaison, Cecilia, &c.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, exhibited some plants of what was described as Lilium concolor (true). The plants were of slender growth, 10 to 15 inches high, with one, two, or three pure scarlet flowers, varying much in size, the largest being 2½ in. across. Some doubts were expressed as to whether the plants were L. pulchellum. Messrs. JAS. VEITCH & SONS also showed a splendid collection of Nymphæa blooms and foliage in great earthenware pans. The collection included varieties of N. Marliacea, as albida, chromatella, rubro-punctata, carnea, flammea, &c.; also N. Aurora, N. Laydekeri purpurata, N. Seigneuretti, N. atropurpurea, N. pygmæa helveola, N. celossea, very fine, of large size, delicate salmon-pink colour and white. An inflorescence of Yucca recurva added dignity to the group (Silver Banksian Medal).

Mr. AMOS PERRY, Winchmore Hill, London, N., showed a very pretty group of hardy plants, and a miniature water-garden, after the manner of that shown by the firm at the Holland House Show. Besides the aquatic plants, most of the varieties of Nymphæa were displayed. Amongst other plants were Tamarix hispida æstivalis, Lobelia sessifolia, 2 feet high, with purple flowers; Campanula persicifolia purpurea plena, Isatis glauca, a fine lot of Campanula lactiflora cœrulea, varieties of Calochortus, excellent blooms of the Campanulaceous Owstrowskia magnifica, &c. (Silver-gilt Banksian Medal).

Mr. A. W. WADE, Riverside Nurseries, Colchester, exhibited capital flowers of Lilium Browni, also of L. excelsum.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, had a collection of Sweet Peas and other hardy flowers.

MESSRS. JONES & SONS, Shrewsbury, exhibited over a white cloth, about seventy-five bunches of Sweet Peas, in earthenware jars. The collection included the choicest varieties, and such novelties as Mont Blanc, white; Baden Powell, blue; and Jeannie Gordon (Silver Flora Medal).

From the ROYAL BOTANIC SOCIETY, Regent's Park (gr., Mr. E. F. Hawes), was shown a magnificent plant of Crinum cruentum, bearing about a dozen flowers and buds, of pale rose colour.

Awards.

Maranta insignis.—The leaves are about 15 inches long, and 2 inches wide at mid-length, tapering very much to the point; the margins are wavy, and the colour of leaves bright green, with olive-green markings; from Messrs. BULL & SONS, 536, King's Road, Chelsea (Award of Merit).

Rose Ben Cant.—A H.P. Rose of the most vivid crimson colour. This excellent Rose was illustrated in *Gard. Chron.*, July 6, 1901, and was awarded a Gold Medal by the National Rose Society on June 26, 1901 (Award of Merit).

Rose Field-Marshal.—This is a climbing monthly Rose, exhibited by Messrs. W. PAUL & SON, Waltham Cross, Herts; the flowers are of moderate size, very full, and in colour bright crimson. It makes fine long growths as a climber, and if these were pegged down, the variety would make a very bright bedder (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. Jas. O'Brien (Hon. Sec.), De B. Crawshay, H. Little, J. Colman, J. W. Potter, H. A. Tracy, W. H. White, W. H. Young, F. J. Thorne, H. T. Pitt, W. A. Bilney, F. A. Rehder, H. Ballantine, H. M. Pollett, J. Douglas, and E. Hill.

But few exhibits of Orchids were staged, and no large groups.

Messrs. JAS. VEITCH & SONS, Chelsea, exhibited a small group of hybrid Orchids, among which were Lælia × Helen, Veitch's variety (L. Digbyana × L. tenebrosa). It had a finely-formed flower, with the sepals and petals greenish-white flushed with rose; the circular-fronted, fringed labellum, sulphur-yellow at the base with fine purple lines, the front being of a delicate rose tint. It partakes more of L. Digbyana than the bronzy-petalled forms previously shown; Lælio-Cattleya × Norba (C. Mossiæ × L. xanthina), with sepals and petals white, slightly tinged with yellow, and rose-coloured lip with reddish-crimson veining, indicative of C. Mossiæ; Cattleya × Atlanta, with four fine flowers on a spike; Lælio Cattleya × Aphrodite alba, with six flowers; and the fine Cypripedium × W. R. Lee.

Baron Sir H. SCHRODER, The Dell, Egham (gr., Mr. H. Ballantine), showed Cypripedium × Antigone (niveum × Lawrenceanum), a fine white flower, with dotted lines, and tinge of rose colour.

Mrs. HAYWOOD, Woodhatch, Reigate (gr., Mr. C. J. Salter), sent Cypripedium × Harri-Leeanum, a showy cross between C. × Harrisianum superbum and C. × Lecanum. The fine upper sepal has a small green base, from which radiates dark purple lines over the rose-coloured middle portion, the margin being white. Sepals and petals reddish-purple, darkest on the upper halves of the petals. Flowers of C. × Harrisianum superbum were also shown for comparison.

R. I. MEASURES, Esq., Cambridge Lodge, Camberwell (gr., Mr. Smith), showed Physosiphon Loddigesii, with several racemes of dark orange-coloured flowers.

J. FORSTER ALCOCK, Esq., Northchurch, sent a hybrid Sobralia, with yellowish, rose tinted flowers, resembling S. × Veitchiana.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr., Mr. Stables), showed Odontoglossum × loochristyense "Theodora," the nearest to O. crispum of any of the natural hybrids between that species and O. triumphans which has yet appeared. Sepals white, tinged with green, and having a small brown blotch at the base, the middle bearing a large irregular blotch of the same colour; petals white, with an occasional brown spot; lip broadly ovate in form, and bearing in front of the yellow crest a large brown blotch, similar to that seen in the best forms of O. triumphans. Margin white, fimbriated, and decorated with small reddish-brown markings.

Sir FREDERICK WIGAN, Bart. (gr., Mr. W. H. Young), showed Cypripedium × Helen (Dayanum × Charlesworthii).

Awards.

FIRST CLASS CERTIFICATE.

Cattleya × Wavriniana Wigan's variety (Warscewiczii × granulosa), from Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young).—A remarkably fine hybrid, showy, and distinct in colour. As usual with C. granulosa crosses, that species is strongly defined in the hybrid, and especially the peculiar isthmus of the lip, on which the finely displayed blade is extended. Upper sepal erect, the two lower ones curved downward and approaching beneath the lip, yellowish, tinged with rose. Petals broad, and extended horizontally, pale rose with an underlying tint of yellow. Lip yellowish at the base, the tips of the side lobes being erected, and tinged with purple; isthmus reddish-purple with yellow edges; front lobe rose colour with purplish-rose veining.

CULTURAL COMMENDATION.

To Mr. G. E. Day, gr. to F. SIMONDS, Esq., Woodthorpe, Beckenham, for a fine plant of Grammangis Ellisii, with a stout inflorescence of twenty-five flowers. The same plant had been exhibited equally well flowered last year.

To Mr. G. Cragg, gr. to W. C. WALKER, Esq., Winchmore Hill, for a specimen of Dendrobium Falconeri, well furnished with flowers. The plant was grown in a pot, trained upright, which is contrary to its natural habit, its slender knotted pseudo-bulbs naturally assuming a drooping character. It was described by Lindley in the *Gardeners' Chronicle* in 1856, p. 692, and still remains one of the handsomest species of Dendrobium, although few cultivate it successfully for several years.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq., chairman; and Messrs. H. Balderson, Jos. Cheal, Henry Eslings, S. Mortimer, A. Dean, Ed. Beckett, J. Jaques, C. G. A. Nix, F. Q. Lane, H. Somers Rivers, O. Thomas, and Geo. Reynolds.

Pea Glory of Devon was shown by Messrs. R. VEITCH

& SONS, Exeter, as well-filled pods, and of robust growth.

Tomatos "Coronation," from Mr. HENRY PARR, Trent Park Gardens, New Barnet, were large, smooth-skinned fruits of the Perfection type.

Messrs. W. RAY & Co., Mount Pleasant Nurseries, Teynham, Kent, exhibited a collection of Kentish Cherries in about thirty dishes. These fruits were of excellent size and quality, especially the varieties Napoleon Bigarreau, Amber Heart, Black Tartarian, Bedfordshire Prolific, Florence, and Noble, a large fruit, with particularly firm flesh, of the Morello type, which was certificated by the Royal Horticultural Society, and figured in the *Gardeners' Chronicle*, Aug. 18, 1900, p. 127 (Silver-gilt Knightian Medal).

Messrs. CROSS & SON, Daffodil Nurseries, Wisbech, exhibited a few fruits of their Early Victoria cooking Apples.

Messrs. T. RIVERS & SON, Sawbridgeworth Nurseries, Herts, exhibited eighteen excellent fruits of Peach Duke of York, gathered from pot-trees, and grown in a cool-house, where they ripened as early as Alexander and Waterloo (Vote of Thanks).

Awards.

Strawberry Givon's Late Prolific.—Fruits bright red colour, wedge-shaped, from a cross between Waterloo and Latest-of-All. The variety was given an Award of Merit on July 2, 1901. Shown by H. P. STURGIS, Esq., Givon's Gardens, Leatherhead (gr., Mr. W. Peters) (First-class Certificate).

Strawberry The Khedive.—A small, rather long, deep-coloured fruit of good flavour, shown by Messrs. JAS. VEITCH & SONS. It is from a cross between Lord Suffield and British Queen, and has good, firm flesh (Award of Merit).

ROYAL HORTICULTURAL, CHISWICK.

JULY 18.—A second meeting of the fruit and vegetable committee was held, to examine late Peas. Present: Mr. W. Marshall in the chair, and Messrs. O. Thomas, G. Wythes, G. Kelf, S. Mortimer, J. Willard, W. Bates, G. Woodward, and A. Dean, thus forming a quorum. Mr. Woodward placed before the committee a large dish and fruiting branches of that splendid Black Currant Boskoop. The variety has very fine and fairly sweet berries, borne on bunches ranging from 3 to 4 inches in length, is quite distinct from any other, is a robust grower, and a heavy cropper. The committee unanimously awarded the variety a First-class Certificate.

The later Peas in the great collection grown here were found during a warm week to have greatly matured. The following varieties obtained awards:—Lord Roberts, 30 inches in height, with fine, straight pods, a great cropper; Improved Dr. Maclean, a stock that is greatly superior to the Dr. Maclean of twenty years since, and worthy another name, 3 feet high, and a very abundant cropper; Prolific, 3 feet high, with very fine pods, and bearing a splendid crop; Royal Jubilee, 4 feet high, a fine late variety, of great excellence. These were from Messrs. SUTTON & SONS, and obtained Awards of Merit.

From Messrs. JAS. VEITCH & SONS came Lord Rosebery, 5 feet in height, a noble podder, and a great cropper; also Late Prolific, 5 feet in height, pods very green, a very abundant cropper, both having Awards of Merit.

The same award was made to Messrs. DICKSONS, LTD., Chester, for a superior late Pea, Champion Marrow, 3½ feet high, pods green, of rich flavour, and a heavy cropper.

Finally, a First class Certificate was awarded to that superb late Pea The Gladstone, now well known in commerce, seed sent by Messrs. ALEX. DICKSON & Co., Belfast, which here gave a truly splendid crop.

The Pea trials included numerous old standard varieties, and these admitted of comparison with the newer ones. Generally the trial showed that real improvements in Peas can now be very rare, as so many exhibit very high excellence. Not a few are inappropriately named, and raisers will in future do well to find sensible appellations for their good things. The Committee passed unanimously a resolution embodying their high appreciation of the general excellence of the Pea-trial, giving great credit to Mr. S. T. Wright and his far too limited staff, which the Chairman consented to hand to the Council.

Cabbage-Lettuces included Carter's Perpetual, a large, tinted variety, hearting so well and standing so long, that an Award of Merit was granted to it.

EXAMINATION IN HORTICULTURE, 1902.

THE Annual Examination in the Principles and Practice of Horticulture was held on April 23, 1902, when 229 papers were sent in. The highest number of marks, 285, was awarded to Miss W. M. Buttenshaw, of the Horticultural College, Swanley, Kent.

A slight increase in the number of entries has occurred, 225 being that of 1901; but still it falls considerably short of that in 1900, viz., 236.

The percentage of the First Class was 48 in 1901, so that it has somewhat fallen; while that of the Second Class has risen from about 38 to 42.

The percentage of the Third Class is nearly stationary, having only slightly improved from 11 to 12.

The lowering of the percentage of the First Class, as well as only two candidates obtaining more marks than 275, is attributable to the somewhat higher standard in the character of the questions. Some students had evidently prepared themselves for meeting such questions as might be asked upon the revised "Requirements."

In the "Principles" there were no serious mistakes, but merely varying degrees of knowledge upon the matter treated of in the replies. The answers as a whole were well expressed, showing considerable care in preparation.

In the horticultural practice department, the candidates kept well to the questions they had to deal with, except in the one relating to landscape gardening; on this subject there is considerable room for improvement. It is a subject that might be dealt with in various phases, and some of the candidates were fully alive to the main points they were asked to deal with. Some of the other questions were not so much dealt with in detail as they ought to have been; owing to this, very few obtained the full number of marks. Upon the whole, the answers were very satisfactory; and, as the questions were rather more difficult than on previous occasions, the result is quite as good as we expected. *Examiners*, *George Henslow*, *James Douglas*.

CROYDON AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

JULY 15.—A meeting was held in the Society's room at the Sunflower Temperance Hotel on the above date, Mr. W. J. Simpson presided.

The subject of the evening was "A Few Remarks upon the Microscopic Structure of Plants," by the hon. secretary, Mr. J. Gregory. The lecturer described the minute structure of Desmids, Algæ, Lichens, Mosses, Ferns, stems, leaves, their appendages, pollens, &c. Mr. Gregory illustrated his remarks with a number of slides of the structures named under microscopes exhibited upon the table. *J. G.*

FORESTRY EXHIBITION AT ABERDEEN.

UNDOUBTEDLY one of the best things in the Highland and Agricultural Society's show held at Aberdeen on the 15, 16, 17, and 18th inst., was the forestry exhibition organised by the Royal Scottish Arboricultural Society. As President, the Earl of MANSFIELD took a great interest in the exhibition, and sent a number of fine specimens from his well-wooded estate of Scone, where some of the finest trees in central Scotland are to be found, in the vicinity of Scone Palace. The general arrangements were well carried out by the Secretary, Mr. R. GALLOWAY, S.S.C., St. Andrew Square, Edinburgh, but the bulk of the work, previous to the opening, fell to the local Secretaries, Mr. JAMES WILSON, B.Sc., of the Agricultural Department of Marischal College, Aberdeen, who was indefatigable not only in procuring exhibits, but in supervising their arrangement; and to Mr. JOHN CLARK, head forester to the Earl of ABERDEEN, at Haddo House.

Mr. MICHIE, Commissioner to His Majesty the King, at Balmoral, forwarded a most interesting display, consisting of a number of very fine pine-boards that had been grown on the Balmoral estate. But the feature of His Majesty's collection was a handsome table-top of pitch pine root, bordered by plain pitch pine, beautifully varnished. In addition to many carved articles, done by the Balmoral Carving Class, there were a large number of beautifully carved walking-sticks.

From the Natural History Department of Aberdeen University there was forwarded a very fine collection of specimens of insects injurious to timber, and also of useful insects. The insects were shown in their various stages, including the egg and larva stages; and illustrations were given of the damage they do to timber by boring holes in it, and in the leaves of trees. In other words, the life history of certain injurious and useful insects was shown by illustration in a manner most interesting and valuable, not only to foresters, but also to the general public.

St. Andrew's University co-operated with that of Aberdeen in this educative work, for Mr. R. A. ROBERTSON of the Botanical Department of that University sent a number of photo-micrographs, prepared by a special method invented by himself, showing the diagnostic characters of the economic and exotic woods.

Somewhat similar in its nature was the exhibition of Mr. CHARLES WOOD, a student of Aberdeen University, now in the Fettercairn Estates Office of the Hon. Charles Stuart Forbes Trefusis of Fettercairn. The microscopic slides which he showed illustrated British timber in longitudinal, tangential, and cross sections.

Mr. ALEX. ROBSON, of Messrs. Wm. Smith & Son, florists, Market Street, Aberdeen, forwarded a collection of forestry books, which every forester should have in his library; and Mr. L. GAVIN, the Schoolhouse, Drumwhindle, Ellon, contributed specimens of home-grown wood, used as object-lessons in his school. By this exhibit Mr. Gavin illustrated how Nature knowledge, as applied to forestry, ought to be taught.

Not less instructive, but appealing more to the eye, were the exhibits of trees to illustrate special points in regard to arboriculture.

Lieut.-Colonel F. N. INNES, of Learnery, Aberdeenshire, for instance, exhibited specimens of Larch and Scots Fir, fourteen years old, pit-planted and notch-planted, the object being to show the difference on the trees in the two methods of planting by pit or by notch. Lieutenant-Colonel Innes also forwarded a section of Larch eighty-five years old, a damaged specimen of Larch, and a specimen of Sycamore damaged by frost.

Specimens of a somewhat similar character were also forwarded by Sir JOHN R. GLADSTONE, Bart., of Fasque, whose exhibits illustrated especially the difference between trees grown in close and open forests respectively.

Mr. R. C. MUNRO FERGUSON, of Novas, and Raith, M.P., a former President of the Royal Scottish Arboricultural Society, sent a considerable collection from his estates, where are to be found one of the best-managed forests in Britain.

Mr. John Clark, forester to the Earl of ABERDEEN, had on show a magnificent specimen of the wood of the Douglas Pine, the concentric rings showing it to have been cut from a tree between forty and fifty years of age, grown on the Haddo estate. As it is just about that number of years since the Douglas Fir was introduced to this country from America, the Haddo House tree must have been one of the earliest planted here. Mr. Clark also sent a great many specimens of various kinds of timber grown on the Haddo estate.

Specimens of the wood of the Cedar of Lebanon and the Californian Mountain Pine were sent by Mr. W. STEUART FOTHERINGHAM, of Murthly; and specimens of Scots Fir by Mr. GEORGE WYLLIE, overseer, Ballogie.

The exhibit from Mr. James M'Kenzie, Cullen House, forester to the Countess of SEAFIELD, was unusual in respect that it was a Larch plank from a tree 150 years old, very few Larch trees of that age being found in this country.

Of even greater interest, as a curiosity, however, was the old panel of wood which for long found a place in the old kirk of Glenbervie, put there to commemorate the death of the Earl of Angus ("Bell the Cat"), with his arms upon it. The exhibit was contributed by Mr. ARTHUR BADENOCH NICOLSON of Glenbervie, whose family obtained custody of the panel when it was removed from the old church.

From the Cruickshank Botanic Gardens, Aberdeen, there was sent a large number of specimens of rare shrubs, and these added much to the attractiveness of the exhibition, as they were employed in its decorative treatment.

What might be termed the industrial department was very fully represented in the exhibition. In this respect a good many local firms came forward with exhibits illustrating the uses to which wood may be put.

From beyond Aberdeen district there were also many notable exhibits. Mr. FRASER STORY, The Glen, Innerleven, Peeblesshire, sent a collection of German forest implements; and Messrs. JOHN DENHOLM & Co., pit-wood importers, Boness, forwarded a lot of pit-wood imported from Norway, Russia, Germany, and other places, with the view of showing that they must go out of this country for the wood they require, because they cannot get it suitable for their purposes here. The props measured from 2 feet to 7 feet in length, and from 2½ to 7 inches top diameter. Those last-mentioned exhibits were included to show the scope there is for the development of forestry in this country.

DEVON AND EXETER GARDENERS'.

JULY 16.—A special steamer took a party to Greenway, the seat of Mr. T. B. Bolitho, snugly embowered in the woods sloping down to the river Dart. (See *Gard. Chron.*, March 16, 1901, fig. 67, and Supplement.) Mr. Murley, gardener, met the party, and conducted his visitors over the gardens and grounds. First to be noticed was a fine plant of Callistemon speciosus, in bloom in the open, and without any artificial protection; Cornus (Benthamia) fragifera, covered with its beautiful pale sulphur-coloured blossoms; Embothrium

coccineum, Azara microphylla, nearly 20 ft. in height; Pittosporum nigrum and P. Mayi, in luxuriant foliage, over 10 feet through, and the same in height; Rhododendrons Falconeri and Aucklandi, out of flower, but in perfect health. One of the most interesting trees inspected was a fine specimen of Guevina Avellana, nearly 20 feet in height. The foliage, which is toothed and imparipinnate, is profusely distributed, and of a deep, shining green, is remarkably handsome, and gives an aspect of luxuriance and great beauty; this tree is believed to be the finest specimen in the country. Phormium tenax variegatum flourishes here, as do many others usually cultivated under glass, but doing well in the open with none other than the natural protection of the woods. The salubrity of the district is similar to that of West Cornwall, and Mr. Bolitho has introduced from his Cornish seat near Penzance many subtropical shrubs, which do equally well here.

In the woods we noticed several plants of Dicksonia antarctica, which so far seem to thrive. Some half-hardy creepers grow luxuriantly in the open at Greenway, such as Trachelospermum jasminoides, Solanum jasminoides, Swainsonia albiflora, Inga pulcherrima, Tecomas (Bignonias) in variety, Cassia corymbosa, Clianthus puniceus, Chorizema, Hydrangea scandens, &c.

The party re-embarked at the private pier, and steamed down to Kingswear, where Mr. Allen, gr. to Mr. R. F. Wilkin, Brookhill, was waiting to escort them over the beautiful grounds and gardens of that estate. Like the last place visited, the interesting feature was the number of plants which, requiring protection elsewhere, grow robustly and flower profusely in the open here. Rosa lævigata, Phormium tenax, Eucalyptus coccifera, Pittosporum Mayi, and many other subjects were inspected, and admired for their fine condition. A very good specimen of Agave americana was just coming into bloom, the flower-spike being already about 8 feet in height, and the inflorescence just breaking. As is well known, the plant dies the year after flowering, young suckers then making their appearance at the side of the roots. Fine effects were produced on the parterres and terraces by the skilful introduction of Coleus of different colours. Fine crops were visible in all directions, a phenomenally heavy crop of Figs (Brown Turkey) being noted on a standard tree. A magnificent standard Magnolia grandiflora was observed with a trunk quite 4 feet in circumference at the base. The interior of Brookhill contains some rich specimens of carved Oak, and in the dining-room are the shields and crests of Devonshire worthies from early Norman times. A room finely carved in Oak, taken from the house at Dartmouth, in which Newcombe, the improver of the steam-engine was born, was showed, and on the terraces and cliffs were many miniature batteries commanding the beautiful entrance to the harbour, opposite Dartmouth Castle. The old *Britannia* training ship and the little navy of pleasure yachts riding at anchor make a pretty setting for a delightful country seat, at which much that is beautiful and rare is shown under the most favourable cultural conditions.

When the visitors were climbing the terrace paths with the thermometer at 80° in the shade, most of them became very red in the face, which brought out the remark by a brother blue-apron, that he had never before seen so many Crimson Ramblers together! The party proceeded to Dartmouth to spend the remainder of the day. *A. Hope.*

FLOWER SHOW IN EDINBURGH.

JULY 16.—The Royal Caledonian Horticultural Society and the Scottish Horticultural Association, both with headquarters in Edinburgh, joined forces this year for one day, and held a nice little flower show in the Music-hall of that city on the above date. The arrangement of the exhibits was deserving of all praise, and was quite distinct from the usual stereotyped range of tabling, each exhibit being set up on a separate staging suitable to its size.

The centre of attraction to most people was the collection of cut Roses from Mr. HUGH DICKSON, Belfast, comprising in all over 200 blooms, fresh and clean, but perhaps slightly undersized. A Gold Medal was rightly bestowed on the exhibitor, who also secured First-class Certificates for two seedlings, the one a crimson variety named "Hugh Dickson," the other named "Dorothy." Messrs. D. & W. CROLL, Dundee, also showed Roses well, in all some 150 varieties, and for the exhibit they were awarded a large Silver Medal.

Messrs. CUNNINGHAME, FRASER & Co., Comely Bank, Edinburgh, produced a large sloping bank, composed of the finer hardy flowers in season. Pæonies, Delphiniums, and Poppies were conspicuous, with some rare alpine plants, the whole edged with long sprays of Lathyrus latifolius and L. Drummondi; for this exhibit a Gold Medal was adjudged.

A like award was made to Messrs. TODD & Co., for a selection of choice bouquets and vases of Sweet Peas, Roses, and Lilies, very charmingly arranged.

A fourth Gold Medal was secured by Mr. Kidd, gr. to Lord ELPHINSTONE, Carbery Towers, for a table of Carnations and other flowers in season.

Messrs. STORIE & STORIE, Dundee, along with other flowers staged some wonderfully fine single Begonias, well deserving the Cultural Certificate bestowed. The exhibit, as a whole, moreover obtaining a large Silver Medal.

The same award was secured by Messrs. R. B. LAIRD & Co., Pinkhill, for groups of plants arranged on the stage. Very conspicuous were specimens of Chironia ixifera, smothered with pretty flowers, a biennial plant unknown to most people, but one well worth attention.

There were pretty tables of Sweet Peas (Silver Medal) from Mr. ALEXANDER, Niddrie-Marischal, and Mr. ECKFORD, Wem; very fine Carnations from Messrs. LAING & MATHER, Kelso (Silver Medal), and Mr. CAMPBELL, Blantyre (Bronze Medal). Mr. MCMILLAN, Trinity, staged cut Pæonies and Roses (Silver Medal); Messrs. DICKSON & Co., greenhouse plants (Silver Medal); as also Mr. WOOD, Edinburgh, a like award; Mr. COWAN, Valleyfield, Penicuick, hardy Ferns (Silver Medal); and a silver Medal was also awarded to an exhibit of Marliac's Water-Lilies and Nelumbium speciosum.

A number of bronze medals were also awarded, and among the recipients were Messrs. KELWAY & SON, Langport, for Gaillardias; Mr. JOHN DOWNIE, Beechhill; and the School of Gardening for Women, Inveresk, for a mixed exhibit.

Other subjects staged worth notice were a collection of rare flowering shrubs and dishes of superior Royal Sovereign and James Veitch Strawberries from Mr. WHYTOCK, Dalkeith Gardens; a dish of Brown Turkey Figs from Mr. LUNT, Keir House Gardens, Stirling; and good Grapes and Pine-apples from Mr. MURRAY, Culzean Castle Gardens, Ayr.

Along with a few other hardy flowers from Mr. ARNOTT, Carsethorn, Dumfries, was a useful-looking white Erigeron, called neo-mexicanum.

A few vegetables were staged by Mr. SCARLETT, Inveresk.

The attendance of the public was unfortunately very unsatisfactory, and must have been depressingly so to the joint secretaries, Mr. MURRAY THOMSON, S.S.C., and Mr. LONEY, after working so hard and so efficiently to secure so interesting an exhibition.

GHENT HORTICULTURAL MEETING.

AT the last meeting, the following awards were made:—

CERTIFICATES OF MERIT

to Cattleya Mossiæ Wagneri alba, from M. LE MARQUIS DE WAVRIN; C. granulosa Dubuissoniana, C. Mendeli alba, C. Harrisoniæ, Odontoglossum crispum var., Professeur O. Wattez, from M. FL. CLAES (à l'unanimité et avec félicitations du Jury); Cattleya Mendeli var., from M. VERDONCK; and C. gigas, from M. E. PRAET.

CULTURAL CERTIFICATES

to Cattleya Mendeli, from M. LE MARQUIS DE WAVRIN; Cypripedium grande, from M. A. DE MEULENAERE; and Dendrobium clavatum, from M. L. DE SMET-DUVIVIER.

CERTIFICATES OF MERIT

to Metrosideros grandiflorus, from M. A. DEMEYER (à l'unanimité et avec félicitations du Jury); Kentia Fosteriana extra robusta, K. F. gracilis, K. F. pendula, K. F. extra compacta, all from M. CARDON; Araucaria excelsa glauca var., from M. A. DEMEYER; Begonia erecta viridis grandis flore pleno, from M. F. VANDEWEGHE (à l'unanimité et avec félicitations du Jury); lot de fleurs coupées de Begonia double, from the same.

CULTURAL CERTIFICATE

to Lomatia heterophylla, from M. A. DEMEYER.

HONOURABLE MENTION

to Kentia Fosteriana robusta, from M. L. CARDON; Pultenæa subumbellata, from M. A. DEMEYER.

HONOURABLE MENTION FOR BOTANY

to Juncus spiralis, from M. A. DEMEYER.

NATIONAL ROSE SOCIETY'S NORTHERN SHOW AT MANCHESTER.

JULY 19.—Seventeen years have elapsed without Manchester having the National Rose Society as its visitor, but during that long space of time periodical Rose shows have been held at the Royal Botanical Gardens, and the large number of visitors on Saturday must have gladdened the hearts of the Secretary of the National Rose Society, Mr. E. Mawley, also to Mr. Weathers, and others associated in the great show. Misgivings there were as to what the quality of the blooms would be, but to connoisseurs and the general public at large there was the greatest pleasure and surprise manifested, for the whole pavilion was a perfect blaze of rich colouring.

NURSERYMEN'S EXHIBITS.

The prize for thirty-six distinct blooms carried with it the Jubilee Trophy and the Gold Medal, and here Messrs. HARKNESS & Co., Hitchin, carried away the coveted honour with capital blooms, the best being Muriel Grahame, Her Majesty, Earl of Dufferin, Killarney, Mildred Grant, and Mrs. W. J. Grant. Messrs. R. B. CANT & SONS, Colchester, were 2nd; and Messrs. ALEX. DICKSON & SONS, Newtownards, co. Down, 3rd.

The competition for sixty distinct trusses was again very keen, Messrs. R. B. CANT gaining the premier position with a really charming display, clean and bright in colour. An excellent 2nd prize winner was found in the firm of Messrs. ALEX. DICKSON & SONS; and Messrs. HARKNESS were 3rd.

In the class for twenty-four trebles, the decision lay in favour of Messrs. HARKNESS, who had Mildred Grant, Helen Keller, Marquis Litta, Her Majesty, Gustave Piganeau, Ulrich Brunner, Mrs. John Laing, Earl of Dufferin, Lady Clanmorris, Killarney, Mrs. Mawley, and Reynolds Hole, most perfect. The 2nd prize was won by Messrs. ALEX. DICKSON & SONS; and Messrs. R. B. CANT were third.

There was another class for thirty-six blooms, distinct, and here Mr. HUGH DICKSON, of Belfast, scored a fine victory with the best of blooms. Messrs. G. TOWNSEND & SONS, Worcester, were 2nd; and Mr. FRETTINGHAM, Notts, 3rd.

Mr. HUGH DICKSON was 1st for sixteen trebles; and Mr. J. MATTOCK, Oxford, 2nd.

TEAS AND NOISETTES.

Messrs. ALEX. DICKSON & SONS proved victorious in the leading class for eighteen distinct blooms; Kaiserin Augusta Victoria, Duchess of Portland, Catherine Mermet, Maman Cochet, Comtesse de Nadaillac, Francisca Kruger, Madame Cusin, Meta, and Souvenir de Elise Vardon, being in the pink of condition; Mr. G. PRINCE, Berks, was a close 2nd follower; and Messrs. D. PRIOR, Colchester, 3rd.

For the best twelve blooms, distinct, there was a spirited competition between Messrs. J. MATTOCK, TOWNSEND, and J. BURRELL, Cambridge.

For twelve new Roses, distinct, Messrs. ALEX. DICKSON had Florence Pemberton, Mildred Grant, Queen Alexandra, and others in rare form; Messrs. R. B. CANT, were 2nd; and Messrs. F. CANT & Co., 3rd.

For twelve white or yellow, F. CANT & Co., had Bessie Brown, very select; 2nd, Mr. G. PRINCE.

Messrs. ALEX. DICKSON'S Mildred Grant, were superb for twelve light rose coloured; 2nd, F. CANT & Co.

Mr. HUGH DICKSON won the class for crimson Roses.

The exhibition Roses in vases occupied one of the side tables, and here one could see the perfection of arrangement, Mr. G. PRINCE, winning the 1st prize; Mr. J. MATTOCK, was a very close 2nd.

The decorative garden Roses were exhibited against a dark background, the shades of colour and admirable arrangement of flower and foliage made them quite a feature. Mr. J. MATTOCK was 1st, Messrs. F. CANT & Co. 2nd, and G. PRINCE 3rd.

AMATEURS' SECTION.

The Jubilee Trophy and Gold Medal brought out a fine exhibition, the 1st prize going to Mr. E. B. LINDSELL, Brearton, Hitchin, for a stand that was perfect; Mr. H. V. MACHIN was 2nd, and the Rev. J. H. PEMBERTON 3rd.

For thirty-six blooms distinct, Mr. LINDSELL was again 1st, the Rev. J. H. PEMBERTON 2nd, and Mr. R. PARK, Bedale, 3rd.

The class for eight trebles brought keen competition and splendid blooms. 1st, Rev. J. H. PEMBERTON; 2nd, Mr. H. V. MACHIN.

For nine Roses other than Teas or Noisettes, 1st, Rev. J. H. PEMBERTON.

Open to growers of fewer than 2000 *plants.*—This class for eighteen distinct blooms, for which the 1st prize was a piece of plate, presented by James Brown, Esq., Heaton Mersey, brought out some of sterling quality, Mr. R. FOLEY HOBBS winning; 2nd, Mr. C. BURGESS, Knutsford.

Open to Growers of fewer than 1000 *Plants.*—There was in this section a class for twelve blooms, distinct, and here North Lancashire growers the Rev. Father LANGTREE, Grange, and Mr. R. L. GARNETT, Lancaster, scored 1st and 2nd.

The garden and decorative Roses were of a very high standard, the Rev. J. H. PEMBERTON leading with a most attractive arrangement; 2nd, Mr. H. V. MACHIN.

The class for six vases gained the esteemed Secretary of the National Rose Society, Mr. E. MAWLEY, the prize.

BEST BLOOMS, N.R.S. MEDALS.

Messrs. Townshend & Sons, Mrs. J. Laing.
Messrs. F. Cant & Co., Mildred Grant.
Messrs. D. Prior & Sons, Maman Cochet.
Rev. Father Langtree, Prince Arthur.
Rev. F. C. Burnside, Maman Cochet.
Mr. R. Foley Hobbs, Mildred Grant.

GOLD MEDAL ROSE.

Messrs. ALEXR. DICKSON & SONS, for a large basket of magnificent blooms of Florence Pemberton, a splendidly-built flower, creamy-rose, with a very vigorous growth.

NATIONAL CARNATION & PICOTEE.

JULY 22.—The lovers of the Carnation, the Coronation or July flower, held their annual festival at the Drill Hall on the above date; the Council having given up for their use three of the tables running the length of the hall, while the groups and pot plants were placed along one of the sides of miscellaneous trade collections. there were just enough to line the remainder of the outside walls, and impart some variety to the display. It was a larger and better exhibition of the Carnation than could have been expected, regard being had to the changeable character of the season, and to the happening of a spell of chill March weather, which continued through the few days immediately preceding the show. The "Carnationists" did their best as they always do, but the stamp of inferiority was on some of the flowers, and especially on the white ground flake and bizarre Carnations, for they were under-sized, wanting in purity and brightness, and lacking finish.

It was gratifying to find the Royal Nursery, Slough, returning to its old form, and taking the 1st prize for twenty-four blooms of bizarres and flakes. The best blooms of this section undoubtedly came from Mr. F. A. WELLESLEY, of Woking, who established a kind of record by taking so many 1st prizes. In Division II. he won all along the line.

The white ground Picotees were decidedly superior to the white-ground Carnations. It was pleasant to see that zealous raiser Mr. MARTIN R. SMITH, and his clever gardener, Charles Blick, winning in the class for twenty-four blooms; and Mr. Smith said he was taking up their culture, for he found them so winsome and attractive.

Selfs, yellow grounds, and fancies were in some instances very fine. Mr. MARTIN R. SMITH in Division I., and Mr. F. A. WELLESLEY in Division II., were the champions.

Once more could be heard protests against blooms of Carnations and Picotees being shown on formal stands reposing on paper collars. They fall upon deaf ears. [It is time an ear-trumpet was used!] How small and contracted in breadth appeared the undressed blooms of the same varieties when compared with their dressed twin relatives! and when the judges were examining the undressed blooms of seedlings, a dressed flower was called for, to show its possibilities of development. Mr. Worthington G. Smith, with a regard for harmony of colours, pointed out the incongruity of placing a pure white self on a white paper collar; it should have been of a neutral tint—indeed, all the delicate self Carnations would look the better if similarly treated. There were no bouquets of Carnations, and the vases were overdone with brown grasses. The decorated dinner-tables we used to see at the Crystal Palace have disappeared. In addition to cut blooms, there were classes for groups of Carnations in pots; and one for twelve specimens, also in pots.

DIVISION I.

Carnations, Flakes and Bizarres.—With twenty-four blooms, not fewer than twelve varieties, Mr. C. TURNER, Royal Nursery, Slough, was placed 1st, having P.P.B. Sarah Payne (sent out in 1847), S.B. George Herbert, R.F. Thalia, P.F. C. Henwood, S.B. Duke of York, R.F. Mrs. T. Lord, P.P.B. Sir Garnet Wolseley, R F. John Keet, S.B. Dr. Hogg, C.B. Thaddeus, C.B. Autocrat, S.B. Admiral Curzon, P. James Taylor, C.B. Harrison Weir, S.F. James Hall, and S.B. Edward Adams. Mr. MARTIN ROWAN, who in the crowded district of Clapham Station shows that good Carnations can be grown in the smoke of London, was 2nd; and Mr. MARTIN R. SMITH, 3rd.

Carnations, Selfs.—Mr. M. R. SMITH came in 1st with twenty-four self flowers, having Cecilia, yellow; Bomba, pale rosy-pink; Daffodil, pale yellow; Bridegroom, deep bright rose; Ensign, buff; The Naaid, primrose; H. J. Cutbush, bright scarlet; Grand Vizier, rich pink; Sir Bevys, crimson-maroon; Joan of Arc, rose; Much the Miller, white; Mrs. E. Hambro, white; Agnes Sorrel, rich dark maroon; and Anne Boleyn, salmon. Several of the foregoing were new varieties not yet distributed. Mr. C. TURNER, who was 2nd, had fine blooms of Orpheus, deep rose; Rizzio, bright yellow; Hildegarde, pure white; Benbow, soft salmon-buff; Maid Marian, Lady Dartmouth, Earl of Mercia, primrose, &c.

Fancy Carnations.—With twenty four blooms, Mr. M. R. SMITH, was again 1st; he had Lily Duchess, Elaine Berengaria, Thor, Bridesmaid, Jack Spraggon, Anthos Siegfried, Cavalier, Carmen, Argosy, Amphion, Pagan, Molly Maguire, Thisbe, and Caird, most of them being new varieties of fine quality. Mr. C. TURNER was 2nd.

Picotees, white grounds.—Mr. M. R. SMITH was again placed 1st with twenty-four varieties, of general good quality. He had H.P.E. Miriam, H.S.E. Mrs. W. Barron, L.Ro.E. Mrs. Beswick, H.Ro.E. Mrs. Payne, H Ro E. Ganymede, H.P.E. Beau Nash, L.P.E. Lavinia, L.Ro.E. Grace Darling, H.Ro.E. Little Phil, H.Ro.E. Kenneth, L P E. Somerhill, H Ro.E. Lady Louisa, H.P.E Amy Robsart, H.Ro.E. Duchess of York, H.Ro.E. Edith D'Ombrain. Mr. CHARLES TURNER was 2nd.

Picotees, yellow grounds.—Again Mr. SMITH came to the fore with fine blooms of Gronow, Espoir, Corinna, Ophelia, St. Just, Lady St. Oswald, Miss M. Mackrae, Badoura, Lucy Glitters, Countess of Strathmore, Caliph, Alcinous, Fairy Queen, Koh-i-noor, Childe Harold, Dalkeith, &c.; Mr. C. TURNER was 2nd.

Various.—With six selfs, one variety, Mr. SMITH came 1st with Cecilia, yellow; Messrs. BLACKMORE & LANGDON were 2nd, Master F. Wall, blush—a very pleasing flower. The best six blooms of a Y.G. Fancy was Willie Tyler, from Messrs. BLACKMORE & LANGDON; Mr. SMITH coming 2nd with Mountjoy. The best six blooms of any other fancy were those of Millie, from Messrs. BLACKMORE & LANGDON, a distinct and novel variety, white, the centre of the petals flaked with rose; Mr. SMITH was 2nd with a large white, flaked with reddish-rose. Mr. SMITH was 1st with six blooms of a yellow-ground Picotee, having Gronow, a very fine new variety; Messrs. W. TURPIN & Co. were 2nd with Empress Eugénie. Mr. SMITH was also 1st with twelve varieties of any of the foregoing sections, shown in bottles, three blooms of each; Messrs. BLACKMORE & LANGDON were a very good 2nd.

Single Blooms.—S.B.'s Robert Houlgrave and Robert Lord were the best; C.B.'s Master Fred and J. S. Hedderley; P.P.B.'s William Skirving and Sarah Payne; P.F. Geo. Melville and Gordon Lewis; S.F. Guardsman and John Wormald; R.F. Merton and Mrs. Rowan; self, blush, or white, Much the Miller and Mrs. E. Hambro; rose or pink, Miss E. Sebright, a beautiful soft pink variety, from Mr. E. CHARRINGTON, and Bomba; scarlet, red, or crimson, H. J. Cutbush, very bright, and The Sirdar; maroon or purple, Sir Bevys and Agnes Sorrel; yellow, Germania still holds its own, and won all five prizes; buff, Ben bow, like Germania, won all five prizes; fancy yellow ground, Queen Bess and Argosy. Other fancy, Artemis, flaked red and heliotrope.

Picotees, single blooms.—Red, heavy edge, Ganymede and John Smith; red L.E., Etna and Thos. William; purple H.E., Fanny Tett, won all the prizes. Purple L.E., Lavinia, also won all. Rose or scarlet H.E., Mrs. Foster; Lord, a charming new variety; and Little Phil. Rose or scarlet L E., Fortrose and Favourite.

Premier Blooms.—The premier bizarre Carnation was C. B. Master Fred, shown by Mr. F. A. WELLESLEY. The premier flake, Sportsman, from Messrs. W. PEMBERTON & SON. The premier self, Miss Guy Sebright, from Mr. E. CHARRINGTON. The premier fancy, Queen Bess, from Mr. W. SPENCER. The premier H.E. Picotee, rose, Mrs. Foster, from Mr. R. SYDENHAM. The premier L.E., Fortrose, shown by Mr. F. A. WELLESLEY. The premier H. E. yellow ground, Dalkeith, from Mr. SMITH; the premier L E. yellow ground, Mrs. Walter Heriot, also from Mr. SMITH.

Division II. and Division III. each had a series of classes for the flowers already mentioned, only that there were none for single blooms. In Division II., as already stated, Mr. WELLESLEY was the principal 1st prize winner; and in Division III., Mr. W. SPENCER, jun. There is no doubt that the Cups offered by the President for the greatest aggregate of points in each of these two Divisions would be won by these two gentlemen. The Cup in Division I. was no doubt won by the donor, the greatest number of points carrying these prizes.

There was also a series of classes for undressed flowers, in which the exhibits were numerous; and a maiden class in which there was a good competition.

Pot Plants.—In the class for a large group, Mr. M. R. SMITH was 1st, with a number of finely-grown and bloomed plants; he was the only exhibitor. In the class for a smaller group, two equal 2nd prizes were awarded. The best twelve specimens grown in pots came from Mr. SMITH, and Mr. C. TURNER was 2nd; and they occupied the same positions in the class for a single specimen.

The best centrepiece of Carnations came from Mr. E. J. WOOTTON, who had a yellow variety with grasses; Mrs. HADLEY had the best three ladies' sprays formed of Carnations; and Mr. R. C. CARTWRIGHT the best three buttonholes.

NEW VARIETIES.

In the classes for seedlings, a number of flowers were staged, and prizes awarded to a few; but not one of them received a Certificate of Merit. The following, shown in the various classes, gained this award:—Fancy yellow G. Amphion, primrose, deeply edged and suffused with bright rose, fine in petal; Molly Maguire, Fancy Y.G., delicate buff ground, suffused and heavily edged with purple and rose; and Yellow G. Picotee Lucy Glitters, primrose ground, with medium edge of pale rose; all these three were from Mr. M. R. SMITH. To Nubian, a rich crimson self, heavily flushed with maroon, from Messrs. THOMSON & Co., Birmingham. Espoir (Smith), a yellow ground Picotee, primrose-yellow, with wire edge of rose, the judges wished to see again.

Mr. JAMES DOUGLAS, florist, Great Bookham, staged a collection of flowers not for competition, including several new varieties, but we could not learn if any awards were made.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period July 13 to July 19, 1902. Height above sea-level 24 feet.

1902. JULY 13 TO JULY 19.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR. At 9 A.M. Dry Bulb.	Wet Bulb.	DAY. Highest.	NIGHT. Lowest.	RAINFALL.	TEMPERATURE OF THE SOIL at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	LOWEST TEMPERATURE ON GRASS.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 13	S.W.	64·1	53·2	78 4	51·2	...	60 3	59 8	57 2	45 2
MON. 14	S.W.	74·4	61·0	84 6	49·3	...	61·2	60 0	57 2	44 5
TUES. 15	N.W.	68 9	62 7	82 8	55·3	...	62 5	60 3	57 2	45 3
WED. 16	N.W.	69·9	62 2	75 0	57 0	...	63 3	60·8	57 2	47 0
THU. 17	N.E	·6 2	58 3	73 5	50·5	...	62·2	60·9	57·2	3 0
FRI. 18	N.W.	61 ·0	54·0	67 ·5	47·3	...	61 9	60 7	57 5	39 3
SAT. 19	N.N.W.	56 ·2	52 2	66 ·2	44 ·2	0·03	60 2	60·5	57 5	35 3
MEANS	...	65 8	58·1	75 ·4	50·7	Tot 0·03	61 7	60·4	57 ·2	42 8

Remarks.—The weather during the first part of the week was bright and very warm, but dull and much cooler afterwards.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending July 19, is furnished from the Meteorological Office:—

"The *weather* during the greater part of this week was extremely fine and dry over all the more southern parts of the kingdom, but slight falls of rain occurred frequently in the far north and north-west, and by the end of the period, when the unsettled conditions had extended to all districts, heavy rain was experienced in many western and south-western localities. Thunderstorms prevailed over Scotland on Thursday, and thunder was heard over our eastern counties on Saturday.

"The *temperature* did not differ much from the mean generally, but was 2° above it in England, S., and the Channel Islands. In some northern and western districts it was a little below it. The highest of the maxima were recorded on Monday, when they ranged from 87° in England, S., 86° in England, E., and above 80° in nearly all other English districts, to 70° in Scotland, W., and 69° in Scotland, N. At the end of the week the maxima at most northern and some western stations were below 60°. The lowest of the minima, which were registered on Saturday, varied from 40° in Scotland, E., and 41° in widely different parts of the Kingdom, to 45° in England, N.W., and to 55° in the Channel Islands.

"The *rainfall* exceeded the mean in Ireland, N., but was less than the normal in all other districts. In many English localities the fall was very slight.

"The *bright sunshine* was deficient over Scotland, the North of Ireland, and the North-west of England, and only just equal to the normal amount in England, N.E. Elsewhere, however, there was a large excess. The percentage of the possible duration ranged from 71 in England, S.W., 70 in the Channel Islands, 64 in England, E., and 62 in England, S., to 31 in England, N.E., and Scotland, W., 25 in Ireland, N., 20 in Scotland, E., and 12 in Scotland, N.

THE WEATHER IN WEST HERTS.

SINCE the beginning of the week the weather has been getting rapidly colder. In order to show the unusual character of this change, it need only be stated that on the 14th the temperature in the thermometer-screen rose in the hottest part of the day to 84°, which is about 14° warmer than is seasonable, whereas a week later, on the 21st, the highest reading was only 56°, or 14° colder than is seasonable. To give another instance, at the end of the week the temperature of the ground at 1 foot deep was nearly 10° colder than at the beginning of it. Rain fell on three days, but the total quantity amounted to less than a quarter of an inch. In fact, during the last five weeks, only about an inch of rain

has fallen, which is not much more than one-third of the average quantity for that period. No rain-water has come through the bare soil percolation gauge for nearly three weeks, and none through that on which short grass is growing for a month. There has been scarcely any sunshine the last two days, but during the previous nine days the record averaged rather more than ten hours a day. The winds have been light during the week, and have come almost exclusively from some northerly point of the compass. The atmosphere has remained humid for the time of year during the last two days, but was drier than usual throughout the rest of the week. The Greater Bindweed came first into flower in my garden on the 8th, or eight days later than its average date in the previous eleven years, and three days later than last year. *E. M., Berkhampsted, July* 22, 1902.

MARKETS.

COVENT GARDEN, *July* 24.

PLANTS IN POTS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Adiantums, per dozen	6 0	9 0
Arbor Vitæ, per dozen	6 0	36 0
Aspidistras, per dozen	18 0	36 0
Calceolarias, per dozen	4 0	6 0
Coleus, per dozen	4 0	6 0
Coreopsis, per dozen	4 0	6 0
Crassula, per doz.	6 0	12 0
Crotons, per doz.	18 0	30 0
Dracænas, var., per dozen	12 0	30 0
Euonymus, vars., per dozen	6 0	18 0
Evergreens, vars., per dozen	4 0	18 0
Ferns in variety, per dozen	4 0	30 0
Ficus elastica, per dozen	9 0	24 0
Fuchsias, per doz.	3 0	6 0
Heliotrope, doz.	4 0	6 0
Herbaceous and perennial plants in var., per box	1 0	1 6
Hydrangeas, per dozen	6 0	60 0
Ivy Pelargoniums, per dozen	3 0	6 0
Lilium Harrisi, per dozen	4 0	8 0
Lobelias, per box	1 0	1 6
Marguerites, per dozen	4 0	6 0
— Etoile d'Or, per dozen	4 0	15 0
Mignonette, p. doz.	4 0	6 0
Musk, per dozen	3 0	4 0
Nasturtium, doz.	3 0	4 0
Palms, various, each	1 0	20 0
Pelargoniums, scarlet	4 0	8 0
— pink	4 0	8 0
— white	4 0	6 0
Petunias, per doz.	3 0	4 0
Pteris tremula, per dozen	4 0	12 0
— Wimsetti, per dozen	4 0	12 0
— Major, p. doz.	4 0	12 0
Pyrethrum, double yellow, per doz.	4 0	6 0
Rhodanthe Manglesii, per doz.	3 0	4 0
Roses, various, per dozen	9 0	24 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen	2 0	3 0
Beans, dwf., house, per lb.	1 0	—
— — Channel Islands	0 10	1 0
— Broad, per bushel	1 6	2 0
Beetroots, per dozen	2 6	4 0
Cabbage, p. tally	3 0	5 0
Carrots, per doz. bunches	0 9	1 0
Cauliflowers, per dozen	1 6	4 0
Celery, per bundle	1 6	—
Cress, per dozen punnets	1 3	—
Cucumbers, per dozen	2 0	4 0
Endive, new French, p. doz.	1 3	—
Horseradish, foreign, p. bunch	2 0	2 6
Leeks, 12 bunches	1 6	2 0
Lettuces, Cos, per score	0 6	1 6
— Cabbage, per dozen	0 4	0 6
Marrows, Vegetable, dozen	4 0	6 0
Mint, per bunch	0 2	—
Mushrooms, house, per lb.	0 8	0 9
Onions, new, green, doz. bunches	2 6	4 0
— bag	6 0	—
— foreign, case	6 0	7 0
— picklers, per sieve	3 6	—
Parsley, per doz. bunches	1 6	2 0
— sieve	0 6	1 0
Peas, English, per bushel	1 0	2 6
— bag	2 6	4 6
Potatos, new, per cwt.	6 0	7 0
— Jersey Kidneys, per cwt.	5 0	6 0
Radishes, p. doz. bunches	0 9	1 0
Salad, small, punnets, per doz.	1 3	—
Shallots, per doz.	0 2½	—
Spinach, English, bushel	3 0	4 0
Tomatos, English, per doz. lb.	6 0	7 6
— Channel Ilds. per lb.	0 5½	0 7
Turnips, new, per dozen	3 6	5 0
Watercress, per doz. bunches	0 3	0 6

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, Australian, Tasmanian, and Victorian, per case	13 0	15 0
— English, sieve	3 0	3 6
Apricots, p. sieve	6 6	7 6
Bananas, bunch	7 0	12 0
— loose, dozen	1 0	1 6
Cherries, sieve	4 6	6 0
Currants, Black, sieve	7 6	8 6
— Red, sieve	4 0	5 0
Figs, per dozen	1 6	3 0
Gooseberries, per sieve or half bushel	3 0	5 0
Grapes, new Hamburgh, per lb.	2 0	3 0
— — B., per lb.	0 6	0 9
— Alicante, lb.	10	1 6
— Colmars, lb.	1 3	1 9
— Belgians, lb.	0 5	0 10
Grapes, Muscats, A., per lb.	2 0	3 0
— — B., per lb.	0 10	1 3
Lemons, per case	13 0	18 0
Mangos, per doz.	4 0	6 0
Melons, foreign, each	2 0	3 0
— English, each	2 0	2 4
Nectarines, A., per dozen	12 0	18 0
— B., per dozen	2 0	5 0
Oranges, per case	7 6	—
Peaches, A., per dozen	10 0	18 0
— B., per dozen	3 0	5 0
Pines, each	2 6	5 0
Raspberries, per doz. punnets	4 0	—
— cwt.	18 0	20 0
Strawberries, A., per lb. punnet	0 4	0 8
— pecks	1 0	2 6

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Achillea, per doz. bunches	1 6	2 0
Arums, per doz.	2 0	4 0
Asparagus Fern, per bunch	1 0	2 0
Asters, per dozen bunches	9 0	18 0
Coreopsis, dz. bun.	1 0	1 6
Carnations, bnch.	0 6	1 6
— Malmaison, per dozen	3 0	9 0
Corn Flower, blue, dozen bunches	0 9	1 0
Eucharis, per doz.	2 0	3 0
Gladiolus, The Bride, doz. bchs.	3 0	6 0
— Blushing Bride, doz. bchs.	2 6	4 0
— Brenchlyensis, per doz. spikes	2 6	3 0
— various, dozen bunches	2 0	5 0
Gypsophyla, per bunch	0 3	0 4
Iceland Poppies, p. doz. bunches	0 9	1 3
Iris, doz. bun.	3 0	12 0
Larkspur, per dz. bunches	4 0	6 0
Lavender, per dz. bunches	5 0	6 0
Lilium album, p. doz. blooms	2 0	2 6
Lilium auratum, pr. doz. blooms	3 0	4 0
— candidum, per bunch	1 0	2 0
— Harrisii, per bunch	3 0	4 0
— rubrum, per dozen blooms	1 0	2 0
Lily of the Valley, dozen bunches	4 0	8 0
Mallow, dz. bchs.	3 0	6 0
Marguerites, Yellow, doz. bchs.	1 0	3 0
Pelargoniums, Scarlet, dozen bunches	3 0	4 0
Pinks, doz. bchs.	1 0	1 6
— Her Majesty	2 0	4 0
Pyrethrums, per dozen bunches	2 0	3 0
Roses, Mermet, p. bunch	1 0	3 0
— red, p. dozen bunches	3 0	8 0
— various, doz. bunches	3 0	9 0
Smilax, dz. blooms	1 6	2 6
Sweet Peas, per dozen	1 0	3 0
Stocks, per dozen	3 0	6 0
Stephanotis, per dozen	1 0	2 0
Tuberoses, per doz. blooms	0 6	—

REMARKS.—Some Cape Oranges are per box, 1*s.* 6*d.* Home-grown Apples are now coming in, in sieves or half-bushels, principally Juliens. There are foreign Apricots in sieves; also Green Gages, at 7*s.* to 7*s.* 6*d.* The Australian Apples are a few cases in the hands of some of the merchants. The bag Onions are Dutch.

POTATOS.

French and Jersey, 100*s.* to 120*s.* per ton; English, 120*s.* to 140*s.* per ton. *John Bath*, 32 & 34, *Wellington Street, Covent Garden.*

SEEDS.

LONDON, *July* 23.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that there were but few buyers on to-day's market, with a minimum of business passing. Samples of new English Trifolium are now coming forward, but prices are not yet fixed. Meanwhile, French Trifolium is both good and cheap. Chilian Red Clover-seed continues to attract attention. There is no alteration this week in either Mustard or Rape-seed. Canary-seed favours buyers, whilst other descriptions of bird seeds are altogether neglected. Available stocks of Blue Peas seem quite exhausted, and Haricot Beans are likewise reduced to a very narrow compass.

FRUITS AND VEGETABLES.

GLASGOW, *July* 23.—The following are the averages of the prices during the past week:—Grapes, home, 1*s.* 3*d.* to 2*s.* per lb.; do., English, 1*s.* 9*d.* to 2*s.* 3*d.*; do., Belgian, 9*d.* to 1*s.* do.; Strawberries, Scotch, 2½*d.* to 8*d.* per lb.; do., in tubs, 12*s.* per cwt.; Cherries, English, 4*d.* to 6*d.* per lb.; Oranges, Valencias, ordinary, 420's, 12*s.* to 15*s.* per box; do., large, 13*s.* to 16*s.* do.; do., extra large, 16*s.* to 18*s.* do.; do., large 714's, 15*s.* to 18*s.* do.; Black Currants, Dutch, 13*s.* per cwt.; Mushrooms, 1*s.* per lb.; Tomatos, Scotch, 6*d.* to 9*d.* per lb.; do., English, 5*d.* to 6*d.* do.; do., Guernsey, 4*d.* to 6*d.* do.; Lemons, 6*s.* to 10*s.* per box; do., Naples, 14*s.* to 20*s.*; Onions, Maltese, 6*s.* per cwt.; do., Valencias, 6*s.* to 7*s.* 6*d.* do.; Cucumbers, 4*s.* per box; Carrots, 4*s.* to 5*s.* per hamper.

LIVERPOOL: *July* 23.—*Wholesale Vegetable Market.*—Potatos, per cwt.: Early Regents, 4*s.* 6*d.* to 5*s.* 6*d.*; kidneys, 6*s.* 6*d.* to 7*s.* 6*d.*; new, 1*s.* 6*d.* to 1*s.* 10*d.* per 21 lb.; Turnips, 6*d.* to 10*d.* per dozen bunches; Carrots, 6*d.* to 8*d.* do.; Parsley, 4*d.* do.; Lettuces, 6*d.* to 10*d.* per dozen; Cucumbers, 1*s.* 6*d.* to 2*s.* 6*d.* do.; Cauliflowers, 2*s.* to 3*s.* do.; Cabbages, 10*d.* to 2*s.* do.; Peas, 3*s.* to 4*s.* 9*d.* per hamper; Beans, 2*s.* 6*d.* to 3*s.* 3*d.* do. *St. Johns:* Potatos, new, 1*d.* to 1½*d.* lb.; Grapes, English, 2*s.* 6*d.* do.; Pines, English, 5*s.* to 6*s.* each; Apples, 5*d.* to 6*d.* per lb.; Tomatos, 4*d.* to 8*d.* do.; Currants, red and white, 6*d.* do.; do., black, 6*d.* to 8*d.* do.; Strawberries, 4*d.* to 6*d.* do.; Gooseberries, 4*d.* to 6*d.* per quart; Peas, 1*s.* per peck; Cherries, 4*d.* to 6*d.* per lb.; Cucumbers, 4*d.* each; Mushrooms, 1*s.* 6*d.* per lb. *Birkenhead:* Potatos, new, 1*d.* per lb.; Peas, 8*d.* to 1*s.* 4*d.* per peck; Cucumbers, 2*d.* to 6*d.* each; Gooseberries, 2*d.* to 3*d.* per lb.; Currants, red, 4*d.* to 6*d.* do.; do., black, 5*d.* to 8*d.* do.; Cherries, 4*d.* to 8*d.* do.; Strawberries, 4*d.* to 6*d.* do.; Mushrooms 8*d.* to 10*d.* do.

CORN.

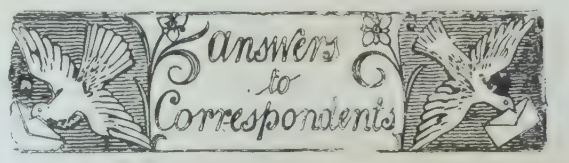
AVERAGE PRICES of British Corn (per imperial qr.), for the week ending July 19, 1902, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1901.	1902.	Difference.
	s. d.	s. d.	s. d.
Wheat	27 3	30 11	+ 3 8
Barley	23 4	23 8	+ 0 4
Oats	19 11	22 10	+ 2 11

TRADE NOTICES.

Mr. A. REEVES, late foreman to Messrs. Thos. Cripps & Son, The Nurseries, Tunbridge Wells, has taken over a florist's and fruiterer's business in the same town, and intends also to carry on the nursery business as well.

Mr. J. G. HILL, who has travelled for Messrs. W. Cutbush & Son, of Highgate, for the last twenty-one years, will in future represent Messrs. William Bull & Sons, of 536, King's Road, Chelsea, in the same capacity.



*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

APPLE-SHOOTS COVERED WITH WEBS: *F. F. B.* The webs are those of the small ermine-moth, just as the caterpillars left them as chrysalids. Shaking the boughs in the earlier stages, after spreading sheets on the ground below, will bring numbers to the ground; but as they let themselves down with a thread, they also return by the same way if not prevented, and likewise by climbing up the stems. Put a band of sticky stuff, gas-tar, fish oil, soap, &c., round the stem. The ground beneath infested trees may be beaten, trampled, or rolled. The trees should be well washed with the garden-engine.

AMPELOPSIS VEITCHI: *F. M.* The dimensions of your leaf are not extraordinary, even out of doors. Under glass the leaves attain a much larger size.

ARAUCARIA SPECIMENS: *N. W. T.* It would be very dangerous to adopt the course you suggest. Instead of applying chemical manures, we would advise that you remove some of the top-soil, and apply a good top-dressing of fresh loam. Afford abundance of water to the roots during dry weather. This extra water itself will be sufficient to produce a good effect.

BRITISH BOTANY: *S. X. Bentham's British Flora* (Lovell, Reeve & Co.), is easier for a beginner. The book you mention is good, but less complete.

CARNATIONS: *P.* A very poor sample.—*T. D.* It is not better than existing varieties.

CHRYSANTHEMUM STEM: *W. B.* In order to trace the cause of the injury to stem and foliage, will you please send us further specimens, together with a portion of the roots of the plant.

CLUBBING IN CABBAGE: *Correspondent.* If the clubbing arises from the fungus, Plasmodiophora Brassicæ, there is no cure but to clear the ground of the remains of the crop and burn them; dressing the land with gas-lime rather heavily, digging it and letting it lie fallow for a few months and then sow or plant it with a crop not belonging to the Cabbage or Cauliflower order, doing this for several years, after which it may be safe to bring it into the ordinary rotation. When clubbing is caused by the gall weevil, the affected plants should be dug up before the

maggots have time to leave the galls, and burn them. An affected plant is known by its weak growth and the blue-green tint.

CONSERVATORY PLANTS WITH DROOPING FOLIAGE: *J. D., Stretford.* If the house was painted more than a week before any ill-effects were noticed, the injury is likely to be due to some other cause, and we are inclined to think that cause may be the one you suggest. Chemical manures, though of very great use to the gardener, are nevertheless extremely hurtful in the hands of careless persons, or of those who do not know in what proportion they should be used. Pot-plants are particularly liable to injury from being overdosed with such manures, especially if it be nitrate of soda.

CROQUET LAWN: *N. W. T.* This should be not less than 30 yards long, and 20 yards wide. A full-sized lawn measures 40 yards by 30 yards.

EXHIBITING FRUITS AND VEGETABLES: *A Novice.* You should make yourself acquainted with the number of samples required for a dish of those you intend to exhibit. Send to Secretary, Royal Horticultural Society, 117, Victoria Street, Westminster, for a copy of *Rules for Judging*, price 1s. 1*d*., post free. This book will afford you much information upon the subject that we have not space to print here.

"FRUIT CROPS": *Several Correspondents.* The reports furnished us by our correspondents will be published in our next issue.

GARDEN ANNUALS: *G. de B., Halsmeer, Holland.* You will find what you want in the *Horticultural Directory*, published at 12, Mitre Court Chambers, Fleet Street, London, E.C.

GARDENER INTRODUCING PLANTS TO HIS MASTER'S GARDEN: *W. Y.* It may seem rather unfair that a gardener who has only been employed in an establishment for four months, and is about to leave, should be unable to take away plants in pots which he brought to the garden himself. But we are afraid this is correct unless you made an agreement with your employer in regard to his receiving the plants, and permitting you in certain circumstances to remove them. At the same time, we think it would show bad taste for an employer to exact his rights in such a case.

GARDENIAS: *W. G. L.* If these plants are plunged, and their heads are not too near the glass, you need not shade them, unless in very hot sunshine. Keep the atmosphere of the house or pit warm and very moist. On no account use permanent shading.

GRAPES: *E. M.* Your Grapes are affected with the "Spot" fungus (Glæosporium). Remove all berries that show the disease and burn them. Next season spray with liver of sulphur at the rate of ½ oz. to a gallon of water.

HISTORIC AND MODERN PARKS IN ENGLAND AND SCOTLAND: *E. P.* To give a list of these is more than we have time or space to do. You should consult the *Horticultural Directory*.

MANGOLD SEEDS: *H. & Sons.* We are not able to answer the question.

MONTBRETIAS: *A. J. R.* There is no trace of injury caused by either insect, mite, or fungus. The injury is due to some condition that can only be determined on the spot. Has the clump been infested by ants? *G. M.*

NAMES OF FRUITS: *J. B.* A well-kept example of Winter Majetin.

NAMES OF PLANTS: *N. B., Norwood.* 2, unanswered last week, Carlina Biebersteiniana. —*H. G.* Spartium junceum.—*G. H., Chester.* Gongora quinquenervis.—*Fig.* 1, Dendrobium clavatum. Sometimes Dendrobium flowers quickly fade in the manner you describe, by self-fertilisation, as it is called, but yours seem to have failed from being in an unsuitable atmosphere — probably too warm and ill-ventilated; 2, Oncidium flexuosum.—*Hilton.* 1, Selenipedium × Sedeni; 2, Bulbophyllum Lobbi; 3, Maxillaria tenuifolia.—*Gartner.* Spiræa filipendula, double-flowered variety, so far as we can tell from the wretched scrap. It is a Rosaceous plant, and a native of Britain.—*F. E. M., Shere.* Lonicera etrusca.—*H. H.* 1, a Spiræa, send when in flower; 2 and 3, Deutzia crenata vars.; 4, Lonicera japonica; 5, L. etrusca; 6, Viburnum Opulus.—*J. W.* Gerbera Jamesoni, Transvaal.—*C. B.* 1, Hæmanthus tigrinus; 2, Cupressus Lawsoniana; 3, Thuya orientalis var.; 4, Juniperus virginiana; 5, Cupressus torulosa; 6, C. Goweniana; the two latter are doubtful determinations in the absence of cones.—*H. W.* 1, crested Moss Rose; 2, Lilium Martagon; 3, Alstrœmeria aurea; 4, Lilium umbellatum; 5, Philadelphus grandiflorus; 6, P. coronarius; 7, Rubus nutkæanus.—*X. Y. Z.* 7, Cassine fulvida; 8, Spiræa Douglasii; 9, Colutea arborescens; 10, Leycesteria formosa; 11, Amorpha fruticosa; 12, Myricaria germanica.—*C. H.* Ruscus aculeatus, Butcher's Broom; Juniperus sinensis aurea, and Fagus var. asplenifolia, a variety of the common Beech.—*R. W. R.* Sambucus ebulus, rare in most places.—*A Reader.* 1, Galega officinalis alba; 2, Thalictrum flavum; 3, Rhus Cotinus.—*W. H. W.* 1, Pteris argyræa; 2 and 3, both Pteris tremula; 4, Adiantum cuneatum; 5, A. formosum; 6, Pteris longifolia; 7, P. cretica albo-lineata; 8, Davallia (Microlepia) platyphylla; 9, Polypodium aureum; 10, Asplenium lucidum; 11, Cyrtomium falcatum.—*A. F. P.* 1, Cattleya Loddigesii; 2, Selenipedium × cardinale, generally called Cypripedium; 3 and 4, forms of Odontoglossum Pescatorei; 5, Brassia verrucosa; 6, Codiæum angustifolium maculatum (Croton).—*J. W.* Gerbera Jamesoni (*Gardeners' Chronicle*, 1889, i., fig. 122).—*Wax.* 1, Spiræa Douglasii; 2, Deutzia crenata with double fl.; 3, Tsuga canadensis.

ORCHID NOMENCLATURE: *A.* With regard to the two plants you name as Cypripedium × Edithiæ, that shown in 1892, is properly a Selenipedium, whilst the other is a true Cypripedium. Both records of Dendrobium × Ethel are correct, but in one case the old name of D. japonicum is given as one of the parents, and in the other, the recognised name of D. moniliforme. The name of Masdevallia × Circe, seems to have been given to a second hybrid in error.

PEACH FRUITS WITH SPLIT STONES: *W. B.* This result is generally traceable to extremes in affording nutriment and water to the roots of the trees. Common instances are those in which the borders have been allowed to get very dry before subjecting them to copious supplies of water or liquid-manure. Some varieties, it seems, are more easily provoked to stone-splitting than others.

PEACH MILDEW: *W. C.* Your fruits are affected with a Glæosporium, producing mildew. Remove and burn every one that shows a similar pale salmon-coloured patch upon it.

PEAR SHOOTS: *Carew House, Ramsgate.* The cankered portions are caused, in the first instance, by scale insects. The exudation of gummy slime is due to the presence of fungi in the wounds. Cut away all the worst portions, and during the winter treat the bark of every part of the tree with paraffin, well rubbed into crevices with a brush. *G. M.*

ROSES: *Standard, Constantinople.* It is hazardous for any but an expert to attempt to name Roses from photographs. We have accordingly submitted your letter to one of our most eminent rosarians, who kindly replies as follows: — "The white Rose photographed appears to be the Hybrid Tea-scented variety, Charlotte Gillemot. The red one represented in the other photograph would no doubt throw larger and finer flowers if budded on a Briar; this, however, will depend largely upon the vigour of the plant, as a plant growing strongly on its own roots will give finer flowers than a budded plant growing weakly. The Rose Ronsont Victoria is probably the Bourbon variety, Kronprinzessin Victoria; and Erzherzogin Victoria Melitot is without doubt Grossherzogin Victoria Melita, a sport from Kaiserin Augusta Victoria. I do not know either Madame Kann or Madame Tillier, and cannot find them in any catalogue, British or Continental, to which I have access. The striped Rose might be the Gallica variety, Rosa Mundi, the most distinct and beautiful of the striped Roses, sometimes erroneously called York and Lancaster; the true York and Lancaster being a damask Rose with parti-coloured rather than striped flowers.

STRAWBERRY PLANTS: *S. H. G.* The fungus called Botrytis cinerea is the cause of the mischief. All dead leaves should be removed in the autumn, and in the early spring remove the surface-soil from around the plants, replacing with fresh soil mixed with lime. *G. M.*

TABLE DECORATIONS: *Young Gardener*, and *A Novice.* Read the articles by Mr. Owen Thomas that are now appearing in these pages. In respect to exhibiting decorated dinner-tables, we hesitate to offer advice. So much depends upon the point of view from which they will be judged, but three colours in a simple design should be sufficient.

TOMATOS: *H. W.* The fruits are affected with a fungus (Cladosporium lycopersici), which is exceedingly contagious. Remove and burn every fruit that shows a sign of the disease. — *R. & Co.* Kindly send further specimens.

"WHITEWASH" FOR GLASS-HOUSE: *W. G. L.* If a permanent shading is required, mix a little common whiting in milk and apply this rather thinly. The mixture will adhere to the glass, but will gradually be worn off by rains, and at the end of the season, what remains should be removed by washing. We are however, unable to recommend any kind of permanent shading, because it is injurous to plants during dull weather. A better system is to use material as blinds fixed upon rollers, which may be dropped and taken up again as required; or if the plants that need shade are few, throw a garden mat over them during hot sunshine.

COMMUNICATIONS RECEIVED.—H. E.—H. J. E.—A. P. B.—C. Sprenger, Naples.— J. S., your letter has been referred to our contributor.—J. R., Vienna.—A. H.—A. P.—H. S.—A. H. S.—W. S.—H. F.—W. E. G.—Justus Corderoy—Max L., Baden-Baden—F. T. M.—A. R.—C. B. P.—J. C. M.—K. W. A.—Pennick & Co., next week if possible.—J. W. & Co., Constantinople.—J. W. Tarvit.—N. E. D., Sweden.—F. W. M.—T. M. D. & Co.—G. G.—T. R., Wantall.—W. Lewis.—R. W. R.—N. B.—J. McC.—A. J. Nichols.—S. S. D.—E. F. H.—W. R.—C. F. H.—A. H. S.—Mrs. A.—J. R. P.—E. C.—W. S.—W. W.—H. W. W.—J. D. G.—D. R. W.—J. J.—C. T. D.—W. S.—C. P.—A. E.

CATALOGUES RECEIVED.

PLANTS.

JAMES DOUGLAS, Edenside, Great Bookham, Surrey—Carnations, Picotees, Auriculas, and Daffodils.

ISAAC HOUSE & SON, Westbury-on-Trym, Bristol—Hardy Plants.

BULBS.

A. W. WADE, Riverside Nurseries, Colchester.

FOREIGN.

DAMMANN & Co., San Giovanni à Teduccio, Naples, Italy—Bulbs.

ALEXIS DALLIÈRE, Ghent, Belgium—Stove and Greenhouse Plants, Orchids, &c.

SLUIS & GROOT, Enkhuizen, Holland—Seeds.

J. M. THORBURN & Co., New York, U.S.A.—Trade List of American Trees and Shrubs.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS. — *The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper, more than*

TREBLED.

THE
Gardeners' Chronicle

No. 814.—*SATURDAY, AUG.* 2, 1902.

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OUR FRUIT REPORTS.

EACH year since 1867 we have been enabled by the kindness of our correspondents to give a tabular statement of the condition of the fruit crops throughout Great Britain and Ireland. We are, indeed, happy in looking back to find many who contributed to our records thirty-five years ago, still obliging our readers in this way. We need hardly point out how much the value of the tables as affording statistical data is enhanced by the continuous experience of our correspondents. They know our requirements, and they are, of course, perfectly familiar with the local conditions and circumstances of the districts whence they write. When some day the State institutes, as the American Government does, a detailed census for the benefit of fruit-growers, a comparison of these yearly records should be of the greatest service, especially if co-related with meteorological data which could be readily supplied, and with particulars as to soil, altitude, exposure, and other climatic conditions, which it would be onerous but not otherwise difficult to procure.

Adverting to the condition of the fruit crops in this present year, we do not suppose anyone could have expected that this was to turn out anything but a very bad season. We have experienced every possible variation of weather from the spring—if there ever was a spring in 1902?—up to the present time. The period when the fruit trees were in blossom was for the most part unmitigated winter. The general character of the season is reflected in the tabular summary which we subjoin. That table gives particulars as to the total number of reports received from the various divisions of the country, and special indications as to the relative abundance of each crop in particular counties. Those who require fuller details will find them in the text and in the comments obligingly furnished by our correspondents, of which we hope to publish a selection from week to week.

As illustrations of the general nature of the fruit crops, we may here pick out a few examples. Thus, from the English counties we received 187 records of the Apple crop; 122 of these are entered as under average, 60 as average, and only five as above average—a woeful statement, but not so bad as in the case of Plums, where, out of 184 reports, 150 are below average, 29 are stated to be average, and only five above it. Pears are scarcely better, but they are hardly a commercial crop in the same sense as Apples and Plums. Apples do not seem to be much worse than they were last year; but Pears and Plums are much below what they were last season.

Of small fruits, including Currants and Gooseberries, 79 (out of 187) reports indicate an average crop, 24 were above average, whilst those below number no fewer than 84. Strawberries make a better show: out of 185 records (for England), 95 were average, 58 over, and 32 below the mean—a considerably worse record than in 1901, although the Strawberries, if late, and at first of inferior quality, made up the deficiencies later on, and indeed they are still coming into the market. Peaches and Nectarines are of so little consequence from a purely commercial point of view, that we have omitted them from the summary, but taking the English counties only, we may say that of 147 reports, 85 are average, 31 under average, and 31 over average.

So large is the supply of foreign and colonial fruits nowadays, that a "shortage" in the home supplies does not greatly affect the consumer. For the grower it is another matter; but even he may be compensated by the higher prices he may perhaps obtain. The hybridiser and raiser may be guided in his task by the proved necessity of obtaining hardy, late-flowering varieties. At present, the raising of new fruits is too much of a haphazard procedure, undertaken without a definite aim. The result is that a large proportion of the seedlings raised, either by cross-breeding or selection, are no improvements on their predecessors, and those that do surpass them are few in number.

SUMMARY.

Records.	Apples.	Pears.	Plums.	Cherries.	Apricots.	Small Fruits.	Straw-berries.	Nuts.
SCOTLAND.								
Number of Records	(65)	(63)	(61)	(60)	(28)	(61)	(65)	(12)
Average	22	22	22	35	8	39	39	2
Over	3	1	4	3	5	11	13	2
Under	40	40	35	21	15	11	13	8
ENGLAND.								
Number of Records	(187)	(184)	(184)	(180)	(141)	(187)	(185)	(141)
Average	60	43	29	66	49	79	95	54
Over	5	1	5	7	11	24	58	30
Under	122	140	150	107	81	84	32	57
WALES.								
Number of Records	(17)	(17)	(17)	(14)	(9)	(16)	(16)	(11)
Average	5	2	8	7	5	6	9	6
Over	1	1	2	3	0	4	5	2
Under	11	14	7	4	4	6	2	3
IRELAND.								
Number of Records	(20)	(20)	(20)	(20)	(7)	(20)	(20)	(11)
Average	9	7	10	12	4	8	8	7
Over	3	0	1	1	0	10	12	0
Under	8	13	9	7	3	2	0	4
CHANNEL ISLANDS.								
Number of Records	(5)	(5)	(5)	(5)	(3)	(5)	(5)	—
Average	2	—	3	2	0	3	3	—
Over	0	—	0	0	0	0	0	—
Under	3	5	2	3	3	2	2	—

THE ROSARY.

"ENGLAND'S GLORY."

I HAVE received from Mr. John Robson, Altrincham, whose Rose-grower is a son of the late Henry Bennet, a specimen flower of a new Rose bearing the above ambitious name, evidently a hybrid Tea, raised by J. Wood & Sons, Woking. Its beauty was considerably tarnished before it reached me here. It seems somewhat to resemble Mr. Bennet's Grace Darling in aspect, though not so large or full, and of considerable lighter hue. The petals, when taken off for the purpose of preservation, revealed pale carmine, buff, and delicate yellow shades; and this Rose, which reminds me of the style of Mr. Wm. Paul's Corinna, though of less pronounced colour, I am informed by Mr. Robson, is the result of a cross between Mrs. W. J. Grant and Gloire de Dijon. *David R. Williamson.*

THE SUMMER PRUNING OF ROSES.

The summer pruning of Roses is of importance, especially in respect to the hybrid perpetuals and all autumn blooming Roses. The summer pruning of the Rose consists in cutting back the shoot on which a Rose has been produced immediately the bloom falls (or better still pull it off when ready to fall, and convert it into pot-pourri or otto of Roses); it is necessary to observe the precaution not to cut the shoot too severely. As a rule, about two buds or leaves should be cut off. Very soon after this cutting has been

effected, two or three of the top buds will break into growth, and if strong all three may be permitted to grow and produce flowers; but if only of moderate strength, they should be reduced to two, and if weak, one should only be allowed to remain. Should a shoot which has produced a flower be very short, then only the flower-stalk should be cut off, allowing for a new growth or two to emanate from the apex of the branches. On no account should the branch of a Rose be cut too low down at summer pruning, by this I mean that five or six buds should be left on the shoot after pruning in order to protect the lower buds from starting into growth, these being reserved until spring pruning for the production of the following summer's flowers. It is a mistake to wait until all the flowers have fallen before commencing to prune; by pruning each shoot as the flower drops, a longer succession of bloom is secured in late summer and autumn than if all the shoots were pruned at the same time. The first to bloom is the first to prune.

The Rose-bush should also be looked over at this time, to make sure that it is not overcrowded with weak and useless branches. A great number of shoots is not required, but strength and quality are. The shoots need ample space to develop in, and light and air in abundance around them for the ripening and consolidation of such growths. Growers should therefore not hesitate to let light and air into their Rose-bushes, by the cutting out of weak and useless branches. As soon as the first crop of bloom is over, and the pruning finished, a good soaking of manure-water should be given, and if possible a 2-inch mulch of well-decayed manure should be placed round each plant as far as the roots extend. Given this treatment, the crop of autumn blooms should not fall far short in excellence of the summer display. *Owen Thomas.*

FIG. 24.—A PEACH ON THE UPPER AND A NECTARINE UPON THE LOWER PART OF THE SAME BRANCH.

COLONIAL NOTES.

PEACHES AND NECTARINES ON THE SAME BRANCH.

IN your issue of Sept. 28 last, p. 244, is an interesting note on "Peaches and Nectarines on the Same Shoot." I enclose references from old authors on the subject, which will, I think, usefully supplement your note. They are taken from Smith's *Selections from the Correspondence of Linnæus, &c.* (Longmans, 1821), vol. i. *J. H. Maiden, Sydney.*

"Lord Wilmington has another instance of this commixture or blending of fruits, for he has a tree that produces Nectarines and Peaches, without any art, but quite accidentally. The fruit does not mix together, as in the Apple abovesaid; but complete Peaches and Nectarines both distinct on the same tree." (P. 7, Peter Collinson to Linnæus, April 3, 1741.)

"Some time ago I saw what I think a surprising curiosity. On a large Peach-tree, full of fruit, there was a twig about 2 inches long; on one side grew a Peach, and on the other side a Nectarine. They grew so close together that they touched each other. I stood long with admiration viewing this wonder. The Nectarine had the shining, smooth surface, with a red complexion; the Peaches rough and downy, as Peaches are. We have had two more remarkable instances of Peach-trees naturally, and without art, producing Nectarines; so I reasonably conclude the Peach is the mother of the Nectarine. Where this *lusus naturæ* has happened, ingenious men have improved the accident by budding, or with grafting from the Nectarine-branch; and thus the race of Nectarines began. The variety we have in our gardens has been produced by sowing the stones, and I will tell my dear Baron [Linnæus] an instance in my garden.

FIG. 25.—A COMPOSITE FRUIT: PART PEACH, PART NECTARINE.

Some person eating a Nectarine threw the stone away. Next year it came up. I suffered it to grow, supposing it to be a Peach; but as it grew up to the fifth year, to my great pleasure it showed it to be a Nectarine—and this year, at the present writing, has near three dozen of ripe fruit on it, as rich and high-flavoured as those against the wall. Dr. Solander came down to Mill Hill to feast himself with Nectarines, and he saw this fine tree full of fruit, which ripens a week or two later than those against the wall. This accident confirms what many doubted, that a Nectarine can be produced from the stone, without grafting or budding." (P. 70, Peter Collinson to Linnæus, September 25, 1766.)

"Of this several instances have since appeared; but the editor had once a present of a much more curious variety—a fruit precisely half Nectarine, half Peach, the size, colour, surface, and flavour of each being perfectly distinct in the respective halves. This was witnessed by several persons. It grew in the garden of the late J. Aufrere, Esq., at Hoveton, Norfolk, on a tree which usually bore some complete Nectarines as well as Peaches: but in two different seasons, at some years distant from each other, the same tree produced about half-a-dozen of the combined fruits." (P. 8, Editorial Note, 1821, by Sir J. E. Smith.)

CITRUS MEDICA var. DIGITATA ("BUDDHA'S FINGERS").

The "Agrumi," as all the species and varieties of Citrus are called in Italian, form an important feature in the garden of Sir Thomas Hanbury at La Mortola. They do very well here, and have suffered in severe winters less than in other places on the Riviera.

One of the most curious varieties in this collection is well represented by the accompanying illustration (fig. 26), taken during this past spring by Sir Edmund Giles Loder. It is only an abnormality, but a very curious one, as the carpels of the fruit, instead of being united at the top, are developed separately, whence the fruit is called by the Chinese the Fingers of Buddha; it is chiefly grown in the province of Fokien.

In the last catalogue of this garden, compiled by Mr. C. Dinter, it was classed by mistake as belonging to C. Aurantium, Lin. It belongs, however, to Citrus medica, Linn., and is one of the sub-species Cedra Risso of Gallesio. Our plant resembles in its habit of growth, and especially in the leaves and thorns, the well-known Cedrat di Firenze, the large-fruited Citron, much used for making candied peel.

Bonavia, in his work on Indian Oranges and Lemons, and Engler in the *Natürlichen Pflanzenfamilien*, put it, nevertheless, in the sub-species Limo. But this, as far as concerns our plant, is certainly a mistake.

As the illustration shows, our plant is more a shrub than a tree, with loose and irregular branches, which are often armed with strong, axillary thorns. These thorns are abundantly produced by plants belonging to the sub-species Cedra, but seldom occur in the Lemons. The leaves are shortly petioled, long lanceolate, acuminate and dentate at the margins; they are about 8 inches long and 3 inches broad. The short petioles are not so distinctly articulate as in the Lemons. The fruits are very variable in size and form; the largest are about 8 inches long.

Such digitate fruits occur also in other species of Citrus, and perhaps there is no other genus of plants so subject to the production of abnormalities as this. *Alwin Berger, Curator, La Mortola, May*, 1902.

Fig. 26.—A variety of Citrus medica ("Buddha's fingers").

BOOK NOTICE.

Natal Plants. Vol. III., Part IV.

Following closely the part III., which we noticed in our issue of May 24, comes another addition to this valuable illustrated work on Natal plants by Mr. J. Medley-Wood, A.L.S., Curator of the Natal Botanic Gardens, Durban, and of the Natal Government Herbarium, the present issue also having the title, index, and preface to the volume. In the preface, Mr. J. Medley-Wood explains why the third volume is finished, while the second, which contains figures and descriptions of grasses only, is as yet incomplete, the explanation being that the artist who was engaged on the lithographs of the grasses had to abandon the work, which is now continued by Miss Lauth, the other artist engaged on the work with a new assistant, Miss Franks. In drawing, and especially in depicting botanical details, the work seems to have improved even on its former high quality. The plates in the part under notice, represent a number of interesting and pretty species not in British gardens, as well as some of our garden favourites, such as Morœa iridioides, Eucomis punctata, and Thunbergia alata. Plate 295 shows Loranthus quinquenervis, a rather showy parasitical shrub with scarlet and white flowers, which are to a large extent fertilised by "Sun-birds," in the manner so graphically described under L. Kraussianus. Vol. I., plate 76, Sphæralcea tomentosa, a Malvaceous shrub with pink flowers, the whole plant covered with stellate downy clothing, should be an acceptable garden plant; Clerodendon myricoides is singular in colour, four of the corolla lobes being whitish, and the other violet-blue; and other species of interest are represented and described, the native names and medicinal uses by the natives being given where possible.

REPORT ON THE CONDITION OF THE FRUIT CROPS.

[FROM OUR OWN CORRESPONDENTS.]

THE WORDS "AVERAGE," "OVER," OR "UNDER," AS THE CASE MAY BE, INDICATE THE AMOUNT OF THE CROP; AND "GOOD," "VERY GOOD," OR "BAD," DENOTE THE QUALITY.

*** FULLER COMMENTS WILL BE GIVEN IN THE FOLLOWING NUMBERS. SEE ALSO LEADING ARTICLE ON PAGE 69.

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
SCOTLAND—										
0, Scotland, N.										
CAITHNESS	Average; good	Under; bad	... ..	Average; bad	.....	.....	Average; good	Over; good	.....	W. F. Mackenzie, The Gardens, Thurso Castle, Thurso
MORAYSHIRE	Under	Under	Average	Under	Average	Under	Average	Very good	.....	D. Cunningham, Darnaway Castle Gardens, Forres
ORKNEYS	Average; good	Under; bad	.....	Average; good	Over; good	.....	Under; bad	Average; good	.....	Thos. Macdonald, Balfour Castle Gardens, Kirkwall
SUTHERLAND	Average	Average	Average	Average	.....	.....	Average; over	Average	.....	D. Melville, Dunrobin Castle Gardens, Golspie
1, Scotland, E.										
ABERDEENSHIRE	Under	Under	Average	Under	.....	.....	Average; good	Over average	.....	John Forrest, The Gardens, Haddo House, Aberdeen
	Under; bad	Under; bad	Average; good	Average; good	.....	.....	Average, good	Average; good	.....	James Grant, Rothie Norman Gardens, Rothie
	Under	Under; bad	Under	.....	.....	.....	Average; good	Average; good	.....	John Brown, Delgaty Castle Gardens, Turriff
	Under	Under	Under	Average	.....	Under	Average	Average	.....	Simon Campbell, Fyvie Castle Gardens, Fyvie
	Under; bad	Average; good	Under; good	Average; good	.....	.....	Under; good	Over; good	.....	John M. Troup, Balmoral Castle Gardens, Crathie
	Under	Under	Under	Under	.....	.....	Average	Very good	.....	Robert Littlejohn, Tillypronie, Farland
BANFFSHIRE	Average; under	Average; under	Average; under	Average; very good	Average; very good	Average	Average; good	Average; good	.....	J. Fraser Smith, Cullen House Gardens, Cullen
BERWICKSHIRE	Average; good	Under; good	Under; bad	Average; good	Average; good	Under; good	Average; good	Average; good	Over	Jas. Gemmell, Ladykirk Gardens, Berwick-on-Tweed
	Under; good	Average; good	Over; good	Average; good	.....	.....	Average; good	Average; good	.....	John Cairns, The Hirsel Gardens, Coldstream
	Under; good	Under; bad	Average; good	Average; good	Over; good	Average; good	Over; very good	Under; bad	.....	James Ironside, Blackadder Gardens, Edrom
CLACKMANNANSHIRE	Under	Under	Average	Average	Average	Under	Under	Average	.....	A. Kirk Norwood Gardens, Alloa. N.B.
	Under: bad	Under; bad	Average	Average	Under	Under	Bad	Under; bad	.....	A. Blackwood, Dollar Institution Gardens, Dollar
FIFESHIRE	Under	Under	Under	Average	.....	Average	Over; very good	Average; but small	.....	Wm. Henderson, Balbirnie Gardens, Markinch
	Average	Under	Average	Average	Over	Over	Average	Average	.....	William Williamson, Tarvit Gardens, Cupar
	Under; good	Average; good	Under; good	Average; good	.....	.....	Average; good	Average; good	.....	John Hill, Wemyss Castle Gardens, West Wemyss
FORFARSHIRE	Under	Under	Average	Average	.....	.....	Average	Under	.....	W. McDowall, Brechin Castle Gardens, Brechin
	Under; good	Under; good	Average; good	Average; good	Average; very good	Average; good	Average; very good	Over; good	.....	Thos. Wilson, Glamis Castle Gardens, Glamis
	Under; good	Under; good	Under; good	Average; good	.....	.....	Average; good	Average; very good	.....	William Alison, Seaview Gardens, Monifieth
HADDINGTONSHIRE (East Lothian)	Under; good	Under; good	Under; good	Under	Over; good	Over; very good	Under; bad	Under; bad	.....	R. P. Brotherston, Tyninghame Gardens, Prestonkirk
	Under; good	Average; good	Average; good	Under; good	Over; very good	Over; very good	Average; good	Average; good	.....	William Galloway, Gosford Gardens, Longniddry
KINCARDINESHIRE	Under; good	Under; good	Under; good	Under; bad	Under; bad	.....	Average; good	Average; good	.....	John M. Brown, The Gardens, Blackhall Castle, Banchory
	Average	Average	Average	Average; good	.....	Under	Over	Over; good	.....	W. Knight, Fasque Gardens, Lawrencekirk
LINLITHGOWSHIRE	Average; bad	Average; good	Average	Good	.....	Good	Good; very late	Good; very late	Under	James Smith, Hopetoun Gardens, South Queensferry
MIDLOTHIAN	Under; good	Under; good	Under; good	Under; bad	Average; good	Over; good	Average; good	Average; good	Over; good	James Whytock, Dalkeith Gardens, Dalkeith
PEEBLESSHIRE	Over; good	Under	Under	Under	.....	.....	Over; very good	Average; good	Average	W. McDonald, Cardrona Gardens, Traquair, Innerleithen
	Average	Average	Under	Average	Under	.....	Over	Over	.....	M. McIntyre, The Glen Gardens, Innerleithen
	Average; good	.....	Over; good	Under; very good	Average; good	.....	Average; very good	Over; very good	.....	William Young, Stobo Castle Gardens, Stobo
PERTHSHIRE	Under	Average	Average	Average; very good	Over; good	Over; very good	Average; very good	Average; good	.....	J. Farquharson, Kinfauns Castle Gardens, Perth
	Average; good	Average; good	Over	Over	.....	.....	Over	Over	.....	John Robb, Drummond Castle Gardens, Crieff
	Average; good	Under; good	Under; good	Under; bad	Average; bad	Average; bad	Average; good	Under; bad	.....	James Ewing, Castle Menzies Gardens, Aberfeldy
	Under; good	Under; good	Average; good	Average; good	.....	Average; very good	Under; good	Under; good	.....	Thomas Lunt, Keir Gardens, Dunblane
	Under	Under	Under	Average	Average; good	Average; good	Average	Average; good	.....	John Leslie, The Gardens, Pitcullen House
	Under	Over	Under	Average; bad	.....	.....	Over	Average; bad	.....	George Croucher, The Gardens, Ochtertyre, Crieff
ROXBURGHSHIRE	Average; good	Bad	Under; good	Average; good	Over; very good	Under; good	Average; very good	Average	Bad	W. Gordon, Wolfelee Grdns. Bonchester, by Hawick
6, Scotland, W.										
ARGYLLSHIRE	Average	Average	Under	Average	.....	.....	Average	Average	.....	G. Taylor, Castle Gardens, Inverary
	Under; bad	Average; bad	Average; good	Under; good	Under; bad	Under; bad	Average; good	Under; bad	Under	D. S. Melville, Poltalloch Gardens, Lochgilphead
	Under	Under	Under	Under	.....	.....	Average; good	Average; small	Under	Henry Scott, Torloisk Gardens, Aros, Isle of Mull
AYRSHIRE	Under; bad	Under; bad	Average; good	Under; bad	Average; good	.....	Under; good	Under; bad	.....	William Priest, Eglinton Gardens, Irvine
	Average; bad	Average; very good	Under; bad	Under; bad	.....	Under; very good	Under; very good	Average; very good	Under; very good	D. Buchanan, Bargany Gardens, Girvan
	Average; good	Under; good	Under; bad	Over; very good	Average; good	Under; bad	Over; good	Average; bad	.....	Thomas Gordon, Ewanfield Gardens, Ayr
	Under	Average	Under	Under	.....	.....	Average	Under	...	David Murray, Culzean Castle Gardens, Maybole

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
6, Scotland, W.										
BUTESHIRE	Under	Under	Average	Average	Average	.....	Under	Average	.....	M. H., Mount Stuart House Gardens, Rothesay
DUMBARTONSHIRE	Average; good	Average; good	Average; good	Average	Under	Under	Over	Average; good	Under	George McKay, Balloch Castle Gardens, Balloch
	Under	Average	Under	Average	.....	.....	Over	Over	.....	D. Stewart, Knockderry Castle, Cove
DUMFRIESSHIRE	Average	Under	Over; very good	Over; very good	.....	.....	Average; good	Average	.....	David Inglis, Drumlanrig Gardens, Thornhill
	Average; good	Under; good	Under; good	Over; good	.....	Under; good	Over; good	Over; good	.....	John Urquhart, Haddom Castle Gardens, Eccleſechan
	Average; good	Under; bad	Under; good	Average; good	.....	.....	Average; good	Average; good	.....	R. Wishart, The Gardens, Burnfoot, Langholm
	Average; good	Under; good	Under; good	Under; bad	Under; bad	Under; bad	Under; good	Average good	Average	John Mackinnon, Terregles, Dumfries
	Under; good	Under; bad	Under; bad	Average; good	.....	.....	Average; good	Under; good	.....	James McDonald, Driffholm Gardens, Lockerbie
KIRKCUDBRIGHTSHIRE	Over; very good	Average	Under	.....	.....	.....	Over; very good	Average	.....	William McFadyen, Glenlie Park, New Galloway
	Over; good	Average	Average; good	Under	Under; good	.....	Over; very good	Average; good	.....	William Thomson, Cally Gardens, Gatehouse
LANARKSHIRE	Under; good	Under; bad	Under; bad	Under; bad	.....	.....	Average; good	Average; good	Under; bad	James Miller, Castlemilk Gardens, Rutherglen
	Under; good	.....	Average; good	Average; good	.....	.....	Under; good	Over; promise good	.....	Alex. McMillan, Douglas Castle Gardens
NAIRNSHIRE	Under	Average	Under	Average	Under	Average; good	Average; very good	Average; good	.....	John Anderson, Holme Rose Gardens, Croy, Gollemfield
RENFREWSHIRE	Under	Under	Under	Average	Average	.....	Average	Average	.....	John Methven, Blythswood Gardens, Renfrew
	Under; good	Under; bad	Under; good	Average; good	.....	.....	Under; good	Under; good	.....	Thomas Lunt, Ardgowan Gardens, near Greenock
	Under	Under	Under	Under	.....	.....	Average; bad	Under; bad	.....	W. Hutchinson, The Gardens, Eastwood Park, Giffnock
STIRLINGSHIRE	Under	Under	Under	Average	Average	Under	Average; good	Average; good	.....	Alex. Crosbie, Buchanan Gardens, Drymen
WIGTONSHIRE	Average; good	Average; good	Under; good	Under; bad	Under; bad	.....	Average; good	Average; good	.....	John Bryden, Dunragit Gardens, Dunragit
	Under	Average; good	Under	Under; bad	Average; good	Under	Average	Under	Under	James Day, Galloway House Gardens, Garliestown
ENGLAND—										
2, England, N.E.										
DURHAM	Under	Under	Under	Under	.....	.....	Average	Average	Under	Robert Draper, Seaham Hall, Seaham Harbour
	Average; good	Under	Average; good	Average	.....	Under	Average	Over; very good	.....	James Noble, Woodburn Gardens, Darlington
NORTHUMBERLAND	Under; good	Average; very good	Average; good	Average; good	Over; good	Over; very good	Average; good	Under; bad	.....	George H. Ackroyd, Howick Gardens, Lesbury
YORKSHIRE	Under; bad	Under; bad	Under; good	Average; good	Average; good	Average; good	Average; good	Average; good	.....	John McClelland, Ribston Hall Gardens, Wetherby
	Under	Under	Under	Under	Average	Under	Over	Average; good	.....	Bailey Wadds, Birdsall Gardens, York
	Average	Under	Under	Under	.....	.....	Average	Average	.....	J. Simpson, Studfield House, Wadsley, Sheffield
	Average	Under; bad	Under	Under; bad	Average; good	Under; bad	Average; good	Average	Under	Jno. Snell, The Gardens Farnley Hall, Otley
	Under; bad	Under; bad	Under; bad	Under; good	Over; very good	Average; good	Under; bad	Average; good	Average	J. S. Upex, Wigganthorpe, York
	Average	Under	Under	Over	Over	Under	Under	Average	Over	John Allsop, The Gardens, Dalton Hall, Beverley
	Under; good	Under; good	Under	Average; good	Average; good	Over; good	Average	Average; bad	Over	Chas. Simpson, Newby Hall Gardens, Ripon
	Average; good	Under; good	Under; good	Under; bad	Average; good	Average; good	Under; not good	Under; good	Under	Henry J. Clayton, Grimston Park Gardens, Tadcaster
	Under; bad	Under; bad	Under; good	Under; bad	Over; good	Under; good	Average; good	Over; very good	.....	S. Keepence, Thirkleby Park Gardens, Thirsk
3, England, E.										
CAMBRIDGESHIRE	Under; good	Under; bad	Under; good	Under; bad	Average; very good	Under; good	Under; bad	Average; good	Under; bad	R. Alderman, Babraham Gardens, Cambridge
	Under; bad	Average; good	Average; good	Under; bad	Average; good	Average; good	Under; good	Average; good	Average; good	W. H. Gascoigne, Croxton Park Gardens, St. Neots
HUNTINGDONSHIRE	Under	Average; good	Average; Very good	Under	Over; very good	Average; good	Average; good	Average; very good	Under	F. W. Seabrook, The Gardens, Ramsey Abbey
ESSEX	Average; good	Under; bad	Under; bad	Average; good	Over; very good	Over; good	Average; good	Over; very good	Average; good	H. Lister, Easton Lodge, Dunmow, Essex
	Average	Under	Under	Under	.....	.....	Over; very good	Over; very good	.....	H. W. Ward, Lime House, Rayleigh
	Average	Under	Under	Under	Average	.....	Average	Under	Average	W. R. Johnson, The Gardens, Stanway Hall, Colchester
	Under	Under	Under; bad	Under	Average	.....	Under; bad	Average; good	.....	James Machar, Bramwoods, Great Baddow, Chelmsford
	Under; good	Average good	Under; good	Under; good	.....	Under; good	Average; very good	Under; bad	.....	Charles W. Hodges, The Gardens, Havering Park, Romford
LINCOLNSHIRE	Under; good	Under	Under	Under; good	Over; good	Under	Average	Average; good	.....	H. Vinden, Harlaxton Manor, Grantham
	Average	Under; bad	Under	Average	.....	Average	Average	Under; good	Average	John Rowlands, Manor Gardens, Bardney
	Average; good	Under; good	Under; good	Average; good	Average	Under; good	Average; good	Under; bad	Under	J. Coward, Haverholme Priory, Sleaford
NORFOLK	Average; good	Under; good	Under; good	Under; bad	Average; good	Under; good	Over; very good	Under; good	Over; no Walnuts	E. C. Parslow, The Gardens, Shadwell Court, Thetford
	Average; very good	Under; good	Under; good	Over; good	Over; very good	Under; good	Over; very good	Over; good	.....	Thomas H. Cook, Sandringham Gardens, King's Lynn
SUFFOLK	Average	Under	Under	Under	Average	Average	Average	Average	Under	J. Wallis, Orwell Park Gardens, near Ipswich
	Over; good	Under	Under	Average	Average	Under	Over	Over; good	Under	H. Fisher, Flixton Road, Bungay (late Flixton Hall Gardens)
	Average; good	Under; good	Average; good	Under; bad	Average; good	Under; very good	Average; good	Over; very good	Average	C. Foster, Henham Hall Gardens, Wangford
4, Midland Counties.										
BEDFORDSHIRE	Average	Under	Under	Under	.....	.....	Under	Under	Under	R. Lewis Castle, Manager, Woburn Experimental Fruit Farm, Ridgmont
	Average; good	Under	Average	Average	Average	Average; good	Average; good	Over; very good	Average	H. Nimmo, Cranfield Court Gardens, Woburn Sands
	Average; good	Under; good	Under; bad	Average; good	Under	Under	Under	Under	Under	H. W. Nutt, East End, Flitwick, Ampthill
	Under	Average	Over	Under	Average	Under	Under	Average	Under	Richard Calvert, Woburn Abbey Gardens, Beds

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
4. Midland Counties.										
BEDFORDSHIRE	Average	Average	Under	Average	Average; very good	Average; good	Under	Average	Average; good	George Mackinlay, The Gardens, Wrest Park, Ampthill
BUCKINGHAMSHIRE	Under; good	Under; good	Under; bad	Average; very good	Over; very good	Under; good	Average; good	Under; good	Average; very good	James Wood, Hedsor Park, Bourne End
	Under	Under	Under	Average	Over	Under	Average	Average	Under	John Fleming, Wexham Park Gardens, Slough
	Average; good	Under	Under	Under; bad	Average; good	Under; good	Average	Under; small	Average	Chas. Page, Dropmore Gardens, Maidenhead
	Average; good	Under	Under	Under	Over; good	Average; good	Under	Over; good	Average; no walnuts	Geo. Thos. Miles, Earl Carrington's Estate Office, Wycombe
	Under; good	Under; bad	.....	Average; bad	.....	.....	Under; good	Over; very good	Average; good	W. Hedley Warren, The Gardens, Aston Clinton, Tring
	Under	Under	Under; bad	Under; bad	Under	Under	Under; bad	Over; good	Under	James Smith, Mentmore Gardens
	Under	Under	Under	Average	Average	Under	Average	Average; good	.....	H. Walters, Waddesdon Gardens, Aylesbury
CHESHIRE	Under	Under	Under	Average	.....	Under	Under	Average; good	.....	W. C. Breese, Moreton Hall Gardens, Congleton
	Under; bad	.....	Under	Under	.....	Under	Over; good	Over; very good	.....	C. Wolley Dod (Rev.), Edge Hall, Malpas
	Under; good	Under; good	Under; bad	Under; bad	.....	.....	Average	Under	.....	William Kipps, Walton Lea, Warrington
	Under; good	Under	Over; good	Under; bad	Average; good	Under; bad	Over; good	Under; good	Average; good	Charles Flack, Cholmondeley Castle Gardens, Malpas
	Average	Under	Under	Under	.....	.....	Under	Average	.....	Robt. Mackellar, Abney Hall Gardens, Cheadle
DERBYSHIRE	Under; good	Under; good	Under; good	Under; good	.....	.....	Average; good	Under; good	.....	W. Chester, Chatsworth Gardens, Chesterfield
	Under	Under; bad	Under	Under	.....	.....	Over; good	Under	.....	J. C. Tallack, Shipley Hall Gardens, Derby
	Under	Under	Under	Under	.....	Under	Average; good	Average; very good	Under	T. Keetley, The Gardens, Darby Abbey, Derby
	Under	Average	Under	Average	Under	Average	Under	Average	Under	J. H. Goodacre, Elvaston Castle Gardens, Derby
HERTFORDSHIRE ...	Under	Under	Under	Under; good	.....	.....	Average; bad	Over; good	Average	Thomas Hedley, The Lane House Gardens, King's Walden, Hitchin
	Under; bad	Under; good	.....	Under	Average	.....	Under; very bad	Average	Over; good	W. B. Morle, Frythsden Gardens, Berkhamsted
	Average; good	Under	Average; very good	Over	Average; good	Under	Under	Average	Over	C. E. Martin, The Hoo Gardens, Welwyn
	Under; good	.....	Under; good	.....	.....	.....	Under	.....	Over; very good	Thos. Rivers & Son, Sawbridgeworth
	Average	Under	Under	Under	Average	Average	Under	Over	Average	E Hill, Tring Park Gardens, Tring
	Average; bad	Under; bad	Under	Average	Average	.....	Under	Under	Average	G. Norman, The Gardens, Hatfield House, Hatfield
	Over; very good	Average; bad	Average; good	Average; good	Average; good	Under; very good	Average; good	Over; very good	Over; good	Edwin Beckett, Aldenham House Gardens, Elstree
	Under	Under	Under; bad	Under	Average; good	Under; bad	Under	Average; good	Under	Chas. Deane, Cassiobury Gardens, Watford
LEICESTERSHIRE.....	Under	Under	Under	Under	.....	Under	Under	Average	.....	George Milford, Egerton Lodge, Melton Mowbray
	Under; bad	Under; good	Under; good	Under; good	Average; very good	Under; good	Under; bad	Average; good	.....	Daniel Roberts, Prestwold Gardens, Loughborough
	Under; good	Under; good	Under; good	Under; bad	Average; good	Average; good	Average; bad	Over; very good	Average; good	W. H. Divers, Belvoir Castle Gardens, Grantham
	Under	Under	Average	Average	.....	Average	Under	Average; bad	.....	A. Grubb, Appleby Hall Gardens, Atherstone
	Under; good	Under; good	Under; bad	Under	Average; good	Under; good	Average; good	Average; good	.....	W. Duncan, Bosworth Hall, Rugby
	Under	Under	Under	Under	Average	Average	Under	Average; very good	.....	W. Wadsworth, The Nurseries, Barkely Lane, Queniborough
NORTHAMPTONSHIRE	Under; good	Average; good	Under; good	Under; good	Under; good	Over; good	Under; good	Average; good	Under	Robert Johnston, Wakefield Lodge Gardens, Stony Stratford
	Average	Under; bad	Under; bad	Under; bad	Average	Average; under	Average; good	Over; good	Over; good	H. Turner, Fineshade Abbey Gardens, Stamford
	Under; good	Under; good	Under; good	Average; very good	Over; good	Over; very good	Average; bad	Over; bad	Under; good	James Shennan, Holdenby House Gardens
NOTTINGHAMSHIRE	Under; good	Under; good	Under; good	Under; bad	Average; good	Average; good	Average; very good	Average; good	Under; good	Amos Parr, Holme Pierrepont Hall, Nottingham
	Under	Under	Under	Average	.....	Under	Average	Over; good	Under	J. Lyon, Home Farm, Ossington, near Newark
	Average; good	Under; good	Under; bad	Under; bad	Under; bad	Average; good	Under; good	Average; good	Under; good	J. Roberts, Welbeck Gardens, Worksop
	Under	Average	Under	.....	Average; good	.....	Average	Average; good	.....	J. R. P., Lowdham
	Average; good	Under; bad	Under; bad	Average; good	Over; very good	Under; bad	Over; very good	Over; very good	Under; bad	William Robertson, The Gardens, Thoresby Park, Ollerton, Newark
	Average	Under	Under	Average	Under	Under	Under	Average	.....	A. W. Cullock, Newstead Abbey Gardens, Nottingham
OXFORDSHIRE	Average	Average	Under	Under	Average	Average; good	Average; good	Over; good	Average	P. O. Knowles, Friar Park, Henley-on-Thames
	Average; good	Average; good	Under; good	Under; bad	Over; good	Over; good	Average; very good	Over; very good	Under	John A. Hall, Shiplake Court Gardens, Henley-on-Thames
	Average	Under	Under	Under	.....	.....	Over	Over; very good	.....	James A. Smith, Sarsden Gardens, Chipping Norton
	Under	Under	Under	Under	.....	Average	Under	Over; good	Under	A. J. Long, Wyfold Court Gardens, Reading
RUTLAND	Average	Under	Under	Under	Average	Under	Average	Average	Average	F. J. Brown, The Gardens, Cold Overton, Oakham
SHROPSHIRE	Under; bad	Under	Under; bad	Under; bad	Under	Average; bad	Under; bad	Under; bad	Under	A. S. Kemp, Broadway, Shifnal
	Under	Under	Average	Under	Average	Over	Under	Under	Under	James Louden, The Quinta Gardens, Chirk
STAFFORDSHIRE	Under; bad	Average; good	Under; bad	Average; good	.....	Average; good	Over; very good	Average; good	Under; bad	T. Bannerman, Blithfield Gardens, Rugeley
	Under; bad	Under; bad	Under	Average	Under	Under	Average	Average; good	Average	Geo. H. Green, Enville Gardens, Stourbridge
	Under	Under	Under	Under	.....	Under	Average; except Black Currants	Average; small	Average	C. A. Bayford, Shugborough Gardens, Stafford
	Average; good	Under; good	Under; bad	Under; good	Under; good	Under; good	Average; good	Average; good	Under; good	G. Woodgate, Rolleston Hall Gardens, Burton-on-Trent
	Under	Under	Under	Under	Under	Under	Average	Average	Under	Edwin Gilman, Alton Towers Gardens, Cheadle, Stoke-on-Trent

CONDITION OF THE FRUIT CROPS—(continued).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
4, Midland Counties										
STAFFORDSHIRE	Average	Under	Under	Under	.....	Under	Under; poor	Average	.....	W. Bennett, Rangemore, Burton-on-Trent
WARWICKSHIRE	Under; bad	Under; bad	Under	Under; bad	Over; good	Over; very good	Under; bad	Average	Under; bad	James Rodgers, The Gardens, Charlecote Park, Warwick
	Under; bad	Average; good	Under; bad	Under; bad	Over; very good	Average; good	Under; bad	Over; very good	.....	H. T. Martin, Stoneleigh Abbey Gdns., Kenilworth
	Under; good	Under; bad	Under; good	Under; bad	Average; good	Under; good	Under; bad	Average; good	Under; bad	A. D. Christie, Ragley Gardens, Alcester
	Under	Under	Under	Under; bad	.....	.....	Under; bad	Over; good	Average	W. Miller, Berkswell, North Warwickshire
	Under; good	Under	Under	Under	Average	Average; good	Under	Over; very good	Under; bad	Thomas Masters, Steward, Estate Office, Lower Shuckburgh, Daventry
5, Southern Counties.										
BERKSHIRE	Under	Average	Under	Average	Average	Under	Under; bad	Average	Average	J. Howard, Benham Park Gardens, Newbury
	Under	Under	Under	Under	Average; very good	Under	Average	Average; good	Under	William Fyfe, Lockinge Gardens, Wantage
	Under	Under	Under	Under	Under	Under	Average	Average	Under	Thos. Plumb, Holme Park Gardens, Sonning
	Under	Under	Under	Average	Average	Average	Under	Over	Over	James Coombes, Englefield Gardens, near Reading
	Under	Under	Much under	Average	Average	Average	Under	Over	Over; Walnuts much under	Robt. Fenn, Sulhamstead, near Reading
	Average	Average	Under	Average; very good	Under	.....	Average; very good	Average; very good	Average	James Strachan, Rosehill House Gardens, Henley-on-Thames
	Under; good	Under; fair	Under; fair	Under; bad	Average; good	Average; bad	Under; bad	Average; good	Average	W. Pope, Highclere Castle Gardens, Newbury
DORSETSHIRE	Under; bad	Under; good	Average; good	Under; good	.....	Under; good	Average; good	Under; good	Under	Thos. Denny, Down House Gardens, Blandford
	Under	Under; good	Under	Under	Average	Average; very good	Average; good	Average	Under	Ben Campbell, The Gardens, Kingston House, Dorchester
	Under; bad	Under; bad	Average	Under; bad	Average; good	Under	Under	Under	Average	T. Turton, Castle Gardens, Sherborne
	Under	Average	Under	.....	.....	.....	Over	Average	.....	Joseph Benbow, Abbotsbury Castle Gardens, Abbotsbury
HAMPSHIRE	Under	Average; good	Under; bad	Under; bad	Average; very good	Under; bad	Under; bad	Under; good	Over; good	Arthur Lee, Palace House Gardens, Beaulieu, Brockenhurst
	Under	Average	Under	Average	Under	.....	Average	Average	Over	Edwin Molyneux, Swanmore Park, Bishop's Waltham
	Under; good	Under; good	Average; good	Under; bad	Average; good	Under; good	Under; bad	Under; good	Over	A. G. Nichols, Strathfieldsave Gardens, Mortimer, R.S.O.
	Under	Average	Under	Under	Under	Average; good	Under	Over	Average	J. Wasley, Sherfield Manor Gardens, Basingstoke
	Under; bad	Average; good	Average; good	Average	Under; bad	Average	Average	Average; good	Over	John Bowerman, Hackwood Park, Basingstoke
	Under; bad	Under	Under	.....	Under	Under	Under	Average; good	.....	Noah Kneller, Malshanger Park, Basingstoke
	Under; bad	Under; bad	Under; good	Average	Average; very good	Average;	Average	Over; very good	Average; walnuts under	Thos. Leith, Beaurepaire Park Gdns., Basingstoke
KENT	Under	Under	Under	Under	Average	.....	Average	Over	Under	Geo. Woodward, Barham Court, Maidstone
	Under	Under	Under	Average; good	Average; good	.....	Under	Average; good	Average	W. Jarman, Preston Hall Gardens, Aylesford
	Over; very good	Average; good	Under; good	Average; good	Over; good	Under; good	Average; good	Average; good	Over; good	Henry Elliott, Wildernesse Gardens, Sevenoaks
	Average; good	Under; bad	Under; bad	Under; good	Average	Under	Under	Average; bad	Average; good	Geo. Bunyard, Maidstone
	Under	Under	Under	Under	Average	.....	Over	Over; very good	Under	William Lewis, East Sutton Park Gardens, near Maidstone
	Under	Under	Under	Average	Over; good	.....	Average; except Black Currants	Average	Over; good	Geo. Fennell, Bowden, Hadlow Road, Tonbridge
	Under	Under	Under	Under	.....	.....	Under	Over	Over	B. Champion, Baron's Place, Mereworth
	Under	Under	Under	Under; bad	.....	.....	Under	Average; good	Over; very good	George Lockyer, Mereworth, Maidstone
MIDDLESEX	Under; bad	Under; bad	Under; good	Average; good	Average; good	Under; bad	Under; good	Average; good	Under	George Wythes, Syon House, Brentford, W.
	Under	Under	Under	Under	Average	Under	Under	Under	Under	S. T. Wright, R.H.S. Gardens, Chiswick
	Average	Under	Under	Average	Over; very good	Under	Average	Average	Average	H. Markham, Wrotham Park, Middlesex
	Under; good	Average; good	Under; bad	Over; very good	Under; good	Under; bad	Average; good	Over; very good	.....	Jas. Hudson, Gunnersbury House, Acton, W.
	Under; bad	Average	Under; bad	Average	Average	Average	Average	Average	Average	W. Watson, Harefield Place, Uxbridge
	Under; bad	Under	Over	Under	Under	.....	Under; bad	Average; good	.....	W. Bates, Cross Deep Gardens, Twickenham
	Under; bad	Under	Under	Average	Average	Under	Under	Over	Under	R. H. Cronk, Cranford House, Hounslow
SURREY	Under	Average	Under	.....	.....	.....	Under	Average; very good	Average	William Bain, Burford, Dorking
	Under	Under	Under	Under	Average	Under	Under	Under	Average	Thomas Osman, Ottershaw Park Gardens, Chertsey
	Under; good	Average; good	Average; good	Under; bad	Over; very good	Average; good	Average; good	Over; very good	Over; very good	W. P. Bound, The Gardens, Gatton Park, Reigate
	Under; bad	Over; very good	Under	.....	Average; good	Under; good	Under; good	Under; good	Average	W. E. Humphreys, The Grange Gardens, Hackbridge
	Under; good	Average; very good	Average; good	Under; good	Average; good	Under; bad	Over; very good	Average; good	.....	J. F. McLeod, Dover House Gardens, Roehampton
	Average	Under	Under	Under	Average; good	Under	Under	Average; good	Average	C. W. Knowles, Bagshot Park, Bagshot
	Average; good	Average; good	Over; very good	Over; very good	Over; very good	Average; good	Average; good	Average; very good	Under; good	G. J. Hunt, Ashtead Park Gardens, Epsom
	Under	Average	Average	.....	.....	.....	Average	Over	.....	W. Wilks (Rev.), Shirley Vicarage, Croydon
	Under; bad	Under; good	Under; good	Average; good	Average; very good	Under; good	Average; good	Over; very good	Average; good	Wm. Honess, Cobham Park Gardens, Cobham
	Under	Under	Under	Under	.....	.....	Under	Under	Under	C. J. Salter, Woodhatch Lodge Gardens, Reigate
	Under	Under	Under	Average	Average	.....	Under	Average	Under	Alex. Dean, Kingston-on-Thames

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
5, Southern Counties.										
SURREY	Average; bad	Average; good	Under; very good	.....	.....	.....	Under; very good	.....	.....	James Walker, Ham Common
	Average	Under	Average	Average	Average	Under	Under	Over	Over	Geo. Kent, Norbury Park Gardens, Dorking
	Average; good	Under; bad	Average; good	Under	Average; very good	.....	Average; very good	Under; good	Over; good	John Halsey, Riddings Court Gardens, Caterham
	Average	Under	Under	Average	Average	Under	Average	Average	Under	W. C. Leach, Albury Park Gardens, Guildford
SUSSEX	Average;	Under	Under	Under; bad	Average; very good	Average; good	Average;	Average; good	Over	A. Wilson, Eridge Castle Gardens, Tunbridge Wells
	Under	Under	Under	Under	Under	.....	Under	Average; good	Average	Alex. Reid, Possingworth Gardens, Cross-in-Hand
	Under	Average	Under	Under	Over; good	Over; good	Under	Over; good	Under	E. B., Arundel
	Average; good	Average; good	Under; good	Under	Average; good	Average; good	Under; good	Under; good	Over; good	W. W. Smith, West Dean Park Gardens, Chichester
	Average; very good	Under; bad	Average; very good	Average; very good	Average; good	.....	Average; bad	Average; very good	Under; very good	W. Brunsden, Brambletye Gardens, East Grinstead
	Under; bad	Under; bad	Under	Average	Average	Average	Under	Average	Average	G. Grigg, Ashburnham Place Gardens, Battle
	Under	Under	Under	Under	Average	Average	Average	Average	Average	H. C. Prinsep, Buxted Park, Uckfield
	Under; bad	Average; very good	Under; bad	Under; bad	Over; good	Under; bad	Over; good	Under; good	Average	C. Allen, Worth Park Gardens, Crawley
WILTSHIRE	Under; bad	Under; bad	Under; bad	Average; good	Over; very good	Under; good	Over; very good	Over; very good	Average; good	Thomas Challis. The Gardens, Wilton House, near Salisbury
	Under; bad	Under; good	Under; bad	Under; good	Under; good	Average; good	Under; bad	Average; good	.....	George Brown, Bowood Gardens, Calne
	Under; good	Under; good	Average; good	Average; good	Average; good	Under; good	Average; good	Average; good	Over; very good	E. F. Hazelton, Longford Castle Gardens, Salisbury
	Average	Average	Under	Under	Over	Under	Under	Over; good	Over; good	Alfred Rushent, Savernake Gardens, Marlborough
7, England, N.W.										
CUMBERLAND	Average; good	Under; bad	Under; bad	Average; good	Average; good	Average; very good	Under; good	Average; good	.....	A. L. Statham, Eden Hall Gardens, Langwathby
LANCASHIRE	Under; bad	.....	.....	Average; good	Under	.....	Under	Average; good	.....	Wm. P. Roberts, The Gardens, Cuerden Hall, Preston
	Average; good	Under	Under	Under	.....	.....	Under	Average	.....	W. Ashton, Wrightington Hall Gardens, Wigan
	Under	Under	Under	Under	.....	.....	Under	Under	.....	S. McMaster, Gawthorpe Hall Gardens, Burnley
WESTMORELAND	Under	Under	Average; bad	Average	.....	Average	Over; good	Average; good	.....	Frederick Clarke, Lowther Castle Gardens, Penrith
	Average; good	Under	Under	Under; good	.....	.....	Under	Average; good	.....	W. A. Miller, Underley Hall Gardens, Kirkby Lonsdale
	Average; good	Under; bad	Average; good	Average; good	Average; good	.....	Under; bad	Over; very good	.....	William Gibson, Levens Hall Gardens, Milnthorpe
8, England, S.W.										
CORNWALL	Average	Under	Under	Under	Under	.....	Average; good	Average; good	.....	W. H. Bennett, Menabilly, Par
	Under	Under	Under	Morellos under	Average	.....	Average; good	Average; good	.....	A. Mitchell, Tehidy Park Gardens, Camborne
	Under; bad	Under; good	Under; good	Under; bad	Under; bad	.....	Under; bad	Average; good	Average; good	Alfred Read, Port Eliot Gardens, St. Germans
	Under; bad	Under; good	Under; good	Average; good	Under; bad	Under; good	Over; very good	Average; very good	Under	A. C. Bartlett, Pencarrow Gardens, Washaway, R.S.O.
	Under; bad	Under; bad	Average; good	Average; good	Under; bad	Under; bad	Over; good	Over; good	Average	J. C. Bennett, Boconnoc Gardens, Lostwithiel
DEVONSHIRE	Under	Average; good	Average; good	Average; good	Under; bad	Under	Under	Over; good	Average	Andrew Hope, 38, Prospect Park, Exeter
	Under; bad	Average	Under	Average	Under	.....	Very good	Over; good	Under	Geo. Baker, Membland Gardens, Plymouth
	Average; good	Under; good	Average; very good	Average; good	Average; very good	Under; good	Average; very good	Average; good	Over	James Mayne, Bicton Gardens, East Budleigh
	Average	Average; good	Under	Under	Average	Over; very good	Average	Over; good	.....	G. Foster, Glendaragh Gardens, Teignmouth
	Average; good	Under; good	Under; good	Under; bad	Over; very good	Under; bad	Over; very good	Over; very good	Average; good	C. W. Bloye, Pinhay Gardens, Lyme Regis
	Under	Under	Under	Over; good	Average	Under	Average; good	Over; good	Over	T. H. Slade, Poltimore Gardens, Exeter
GLOUCESTERSHIRE	Under; good	Under; good	Under; good	Under; bad	Average; good	Average; good	Under; good	Average; good	Average; good	Geo. W. Marsh, St. George's Nursery, Cheltenham
	Average; good	Average; very good	Under; good	Under; bad	Over; very good	Average; good	Average; good	Average; good	Under; good	Thos. Edington, Tortworth Court Gardens, Falfield
	Over	Under	Under	Average	Average	Under	Average	Over	Under	William Greenaway, Dodington Gardens, Chipping Sodbury
	Under	Under	Under	Average	Over	Under	Average	Under	Average	William Keen, Bowden Hall Gardens, nr. Gloucester
	Average	Under	Under	Average	Under	.....	Average	Over	Under	John Pentland, Ashwick Gardens, Chippenham
HEREFORDSHIRE	Under; good	Under; good	Average; good	Average; good	Under; good	Under; good	Over; very good	Over; very good	Average; good	Geo. Milne, Titley Court Gardens, Titley, R.S.O.
	Under; bad	Average; good	Under; bad	Under; bad	Average; good	Average; good	Average; good	Over; good	Over; good	John Watkins, Pomona Farm, Withington
	Average; good	Average; good	Average; good	Average; small	.....	Under	Under	Average	Average	Thomas Spencer, Goodrich Court Gardens, Ross
MONMOUTHSHIRE	Average; suffered from blight	Under	Under	Under	Under; bad	Under	Average; good	Average; good	Over	John Lockyer, Pontypool Park Gardens, Pontypool
	Under; bad	Average; good	Average	Average; bad	Average; good	Average; good	Over; good	Average; good	Average	W. F. Woods, Llanfrechfa Grange Gardens, Caerleon
	Under	Under	Under	Under	Average; good	Average;	Average; good	Average; very good	Average	T. Coomber, The Hendre Gardens, Monmouth
	Over	Average	Under	Average	Under; bad	Under	Under; bad	Over; good	Over	Henry Townsend, Maindiff Court Gdns., Abergavenny
SOMERSETSHIRE	Under	Under	Under	Under	Average	Under	Under; bad	Average	Over	Samuel Kidley, Nynehead Court Gardens, Wellington
	Under; good	Under; good	Under	Under	Over; good	Over; good	Over; very good	Over; very good	Average	Thomas Wilkins, Inwood House Gardens, Henstridge, near Blandford
	Average	Average	Under	Average	Average	Under	Average; good	Over; very good	Walnuts under; others average	William Hallett, Cossington, Bridgwater
	Under; good	Under; good	Over; good	Over; good	.....	Average; bad	Under; bad	Over; good	Average	J. Crook, Forde Abbey Gardens, Chard
WORCESTERSHIRE	Under; good	Under; good	Under; good	Average; good	Average; good	Average; good	Under	Average; good	Average	A. Young, Witley Court Gardens, Stourport
	Under; bad	Under; good	Under; bad	Under; bad	Average; good	Under; good	Average; bad	Under; good	Under	F. Jordan, Impney Gardens, Droitwich

CONDITION OF THE FRUIT CROPS—(*continued*).

COUNTY.	APPLES.	PEARS.	PLUMS.	CHERRIES.	PEACHES AND NECTARINES.	APRICOTS.	SMALL FRUITS.	STRAWBERRIES.	NUTS.	NAME AND ADDRESS.
8, England, S.W.										
WORCESTERSHIRE...	Under; good	Under; good	Under; bad	Under; bad	Average; good	Average; good	Under; bad	Average; good	Average; good	William Crump, Madresfield Court Gardens, Malvern
WALES—										
ANGLESEA.....	Under; bad	Under; bad	Under; bad	Average; good	Under; bad	.....	Over; very good	Average; very good	.....	Robert Parry, Llysdulas Gardens, Amlwch
	Under; good	Under; good	Average; good	Under; good	Average; very good	.....	Average; good	Under; good	.....	K. W., Llanfairpwll
BRECONSHIRE	Average	Under	Average	Average; very good	Average; very good	.....	Average	Average; bad	Average; good	C. Hibbert, Craig-y-nos Castle Gardens, Swansea Valley
	Under; very good	Under; very good	Under; bad	Under; bad	Average; good	Average; good	Under; bad	Over; good	.....	Albert Ballard, Glanusk Park, Crickhowell
CARDIGANSHIRE	Average; good	Under; bad	Under; bad	Over; good	.....	.....	Over; very good	Average; good	Over; good	George Wright, Bronwydd Gardens, Maesllyn, Llandyssil
CARMARTHENSHIRE	Average; good	Over; very good	Over; good	Over; good	Under; bad	Under; bad	Average; good	Average; good	Average; good	William Parker, Neuaddfawr Gardens, Llandovery
CARNARVONSHIRE...	Under	Under	Under	Average	Under	Under	Average	Average	.....	Allan Calder, Vaynol Park Gardens, Bangor
	Average; bad	Under; good	Average; good	Average; bad	.....	.....	Under; good	Over; good	Under	T. Evans, Gwydyr Gardens, Llanrwst
	Under	Under	Average	.....	.....	Good	Good	Good	.....	W. Speed, Penrhyn Castle Gardens, Bangor
DENBIGHSHIRE	Under	Under	Average	Very good	Under	Average	Bad	Over; very good	Under	Walter Weir, Park View, Rhosnessney, Wrexham
FLINTSHIRE	Under	Under	Under	Under	Average	Under	Under	Good	Under	John Forsyth, Hawarden Castle Gardens, Chester
GLAMORGANSHIRE..	Average	Under	Average	.....	.....	.....	Average	Average; good	Average	L. Christie, Dunraven Castle Gardens, Bridgend
	Under	Under	Under	.....	Average	Average	.....	Average	.....	A. Pettigrew, Castle Gardens, Cardiff
	Over; good	Average; good	Average; good	Average; good	Over; good	Average; good	Over; good	Over; good	Over; good	R. Milner, Margam Park Gardens, Port Talbot
MERIONETHSHIRE...	Under	Under	Under	Average	Average	Under	Under	Average	Average	F. W. S., Rhûg Gardens, Corwen
PEMBROKESHIRE ...	Under	Under	Average; bad	Under	Average	.....	Over	Over; good	Average	W. B. Fisher, Stackpole Court Gardens, Pembroke
	Under; bad	Average; bad	Over	Average; good	Under	.....	Under; good	Under	Average	George Griffin, Slebech Park Gardens, Haverfordwest
IRELAND—										
9, Ireland, N.										
ARMAGH.....	Under; bad	Under; good	Under; bad	Average; good	.....	.....	Under; bad	Over; good	.....	William R. Spencer, The Manor Gardens, Loughgall
DUBLIN	Under	Average; good	Under	Average; good	Average; good	Average; good	Very good	Over; good	.....	J. Doran, Clontarf Castle Gardens, Clontarf
DERRY.....	Under	Under	Under	Average	Under	.....	Over	Over	.....	James Lindsay, Ballykelly, Londonderry
GALWAY.....	Over; good	Average; good	Average; very good	Under; good	.....	.....	Over; very good	Average; good	Average	Thomas Dunne, Lough Cutra Castle Gardens, Gort
	Under; bad	Average; good	Average; good	Average; good	.....	.....	Over; very good	Average; good	Average; good	And. Porter, Woodlawn Gardens, Woodlawn
LONGFORD	Average	Average	Average	Average	Average	.....	Average	Very good	Good	John Rafferty, Castle Forbes Gardens, Newtown Forbes
MAYO	Average; good	Under	Bad; under	Bad; under	Average; good	.....	Over; very good	Over; very good	Average; good	Patrick Connolly, Cranmore House Gardens, Ballinrobe
MEATH.....	Under	Under	Under	Under	Average; good	.....	Average	Average; good	Under	James Moore, Summerhill House Gardens, Enfield
LIGO.....	Over; very good	Under; bad	Under; good	Average; good	Average; good	.....	Over; very good	Over; very good	Average; good	Cyrus Moore, Markree Castle Gardens, Collooney
	Under; very good	Under; good	Average; good	Average; good	Over; good	Average; good	Over; good	Over; good	Under; bad	James E. Dawson, Lissadell Gardens
TYRONE	Over; very good	Under; good	Under; good	Under; bad	.....	.....	Average; good	Over; very good	.....	Fred. W. Walker, Sion House Gardens, Strabane
	Average	Under	Average; good	Average; good	Under	.....	Average; very good	Average; good	Average	W. B. Jeffreys, Caledon Park, co. Tyrone
WICKLOW	Under; bad	Average; good	Average	Average; good	Under	Under; bad	Average; good	Over; very good	Average	William Owen, Powerscourt Gardens, Enniskerry
10, Ireland, S.										
CLARE	Average	Under	Bad	Bad	Bad	.....	Very good	Average	.....	Wm. Clarke, Castle Crine Gardens, Six-Mile Bridge
CORK	Average; good	Under; good	Average; good	Average; very good	Under; bad	Average; good	Average; very good	Over; very good	.....	C. Price, Mitchelstown Castle Gardens, Mitchelstown
KILDARE	Under	Under	Average	Average	Under	Under	Under	Average; bad	Under	Fredk. Bedford, Straffan House Gardens, Straffan Station
KILKENNY	Average; good	Under; bad	Average; good	Under; good	.....	Average; good	Over; very good	Average; good	Under; bad	H. Carlton, Kilkenny Castle Gardens
LIMERICK	Average	Under	Under	Under	Under	Under	Average	Average	.....	W. A. Bowles, Adare Manor Gardens, Adare
ROSCOMMON	Average; good	Under; bad	Average; good	Average; good	Average	.....	Average; good	Over; good	.....	Terence Rogers, Frenchpark House Gardens, Frenchpark
WATERFORD	Average; good	Average; good	Over; good	Over; very good	Over; good	.....	Over; very good	Over; very good	.....	Thomas Dunn, Strancally Castle Gardens, Tallow
CHANNEL ISLANDS—										
GUERNSEY	Average; good	Under; good	Under; good	Under	Under	Under	Average; good	Average; good	.....	Charles Smith & Son, Caledonia Nursery, Guernsey
JERSEY	Average; good	Under; good	Average; good	Under; good	Average; good	Under; good	Under; good	Average; good	.....	Edwin John Ashelford, 16, Dorset Street, St. Helier
	Under; bad	Under; bad	Under; good	Under; good	Under; bad	Under; good	Average; bad	Average; good	.....	H. Becker, Cæsarean Nurseries, St. Saviours
ISLE OF MAN	Under; good	Under; bad	Average	Average; good	Average	.....	Average	Under	.....	James Murphy, Cronkbourne Gardens, Douglas
	Under; good	Under; good	Average	Average; good	Over; good	.....	Under; bad	Under; bad	.....	James Inglis, The Nunnery Gardens, Douglas

JAM ON THE BATTLE-FIELD.—We know not if the Boers during the long protracted war in South Africa had jams on their *menu*, but we do know that our side had them, and a good many of them too, as witness the following:—Colonel LONG recently asked the Secretary for War for details of the quantities of jam bought for the army during the late campaign, and according to Mr. BRODRICK's reply, it appears that, including English and colonial jams, 34,582,762 lb. was bought, exclusively of local purchases, during the years 1899, 1900, and 1901, for the troops in the field. Of this quantity, 7,553,155 lbs. was Apricot, 7,415,283 lbs. was Gooseberry, 7,171,485 lbs. marmalade, 7,102,433 lbs. Plum, 2,421,400 lbs. Strawberry, and 1,047,800 lbs. mixed fruits. Jam is only served out when troops are on the war-path—*ergo*, it will be as necessary to look after the jam-pot as after the ordinary munitions of war, shot, shell, Long Toms, &c.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

APPOINTMENTS FOR THE ENSUING WEEK.

SUNDAY,	AUG. 3	Chambre Syndicale des Horticulteurs Belges, Ghent, Meeting.
MONDAY,	AUG. 4	Basingstoke Horticultural Society, Show. Ramsey Horticultural Society, Show.
TUESDAY,	AUG. 5	Royal Horticultural Society, Committees Meet. Scottish Hort. Association, Meeting. Hort. Show at Leicester.
THURSDAY,	AUG. 7	Midland Carnation and Picotee Society's Show, at Birmingham (2 days).
SATURDAY,	AUG. 9	Carnation Show at Old Trafford, Manchester.

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —63·1°.

ACTUAL TEMPERATURES:—

LONDON.—*July* 30 (6 P.M.): **Max. 63°; Min. 53°.**
July 31.—Fine, sunny.

PROVINCES.—*July* 30 (6 P.M.): **Max. 64°, Eastern Counties; Min. 51°, N.E. Scotland.**

The Chelsea Physic Garden.

VERY rarely if ever during its chequered history has the old Physic Garden received so brilliant a company as was assembled within its walls on Friday last (July 25). Somehow there seemed a sense of incongruity in seeing smartly-dressed ladies promenading on the lawns, and in listening to the strains of a scarlet-coated band. Could this be the garden of WATTS, of PHILIP MILLER, of ANDERSON, of N. B. WARD, of ROBERT FORTUNE, and THOMAS MOORE? What would Sir HANS SLOANE and LINDLEY have said to it all? And yet the begowned and periwigged statue of Sir HANS SLOANE, which still retains its pride of place in the centre of the garden, seemed, by the exercise of a little imagination on the part of the visitors, to beam on them a kindly welcome. And though the circumstances are now so different, we cannot doubt that Sir HANS, were he still in the flesh, and not merely in crumbling stone, would cordially approve of the proceedings; for it was nothing else but the rejuvenescence of the old garden which was being celebrated, and hither had collected a representative assemblage of the *élite* of the botanical world—Sir JOSEPH and Lady HOOKER, Sir WILLIAM DYER, Dr. SCOTT, Prof. FARMER, Mr. J. G. BAKER, Sir DIETRICH BRANDIS, Mr. DAYDON JACKSON, Prof. FRANCIS OLIVER, and many others.

Under the management of the Society of Apothecaries, the garden has had a fitful and spasmodic existence. At length the end came. The Apothecaries could no longer bear the financial strain involved. They appealed in vain to the Royal Society and the Royal College of Physicians—from whom they had just reason to expect aid. And so there was every reason to fear that the garden would suffer the common fate of "eligible building land," and that a student's garden, and an open space would be for ever lost to the citizens of London. Happily this is not to be the case: under the direction of a Committee of portentous numbers, the garden has been remodelled, and a serviceable set of plant-houses opening into a corridor common to them all, has taken the place of the old and dilapidated structures. One house only, that erected in a northerly or eastern aspect by the late N. B. WARD, remains to show what may still be done in London without fire heat. The plant-beds have been rearranged, a laboratory and a lecture-room, together with a curator's residence—details of which were published in our issue for April 26, page 276—have been built almost on the site of the former library and lecture-room. We say almost, for advantage has been taken of the proceedings to widen the narrow street called Queen's Road. This very desirable change has been effected by curtailing the garden by a few feet on that side, so that the new structures are a little nearer to the river-front than the older ones. One curious result is, that the old Ginkgo, so long a feature of the garden, is now outside its limits. How long will it be before it suffers the fate of the old Cedars? Within our recollection there were two noble Lebanon Cedars. One died several years ago, and the then Curator, the late THOMAS MOORE, so well known in horticultural circles, had a wardrobe made from the timber. The companion tree, gaunt, but picturesque, is allowed to stand, though the life has departed from it.

In spite of the formidable committee of management, we take it the garden may now be considered practically as an appanage of the Royal College of Science, and as such, under the scientific direction of Professor FARMER, whose pupils will experience similar benefits as their predecessors, the medical students of the metropolis, were wont to do under the auspices of the Society of Apothecaries. Some still remain who have a vivid recollection of the excellence of the lectures given here by LINDLEY. At half-past eight in the summer mornings, the students assembled here from hospitals as far from Chelsea as Guy's or the London. Underground railways were not then in existence. Omnibuses and steam-boats served for the return journey, but to get to the garden at that hour of the morning there was nothing for it but to walk, and the distance was in no case little.

The lectures were admirable. The gardener laid on the lecture-table such specimens as were in flower—mostly medicinal plants. Taking these in his hand, LINDLEY made them the substance of an impromptu lecture, pointing out the peculiarities of their structure, the affinities, and the medicinal or other properties of the plant, illustrating his remarks by clever sketches on the black-board. The lectures were intended to supplement the formal courses then given in the several medical schools, and we venture to say that more knowledge, certainly more practical knowledge, of botany was gained in that pleasant manner than from the cut and dried prelections of the ordinary professors, particularly as the specimens, which formed the subject of the lectures, were distributed among the pupils in order that they might verify what the lecturer had said concerning them. Medical botany is now a thing of the past—at least, in the medical schools. It is deplorable, and recent results have shown it to be so; but times have changed, and circumstances have altered, so that the average medical practitioner is now very often destitute of even the rudiments of medical botany. This is a misfortune, which is especially felt in the case of those officers told off for foreign, Indian, or colonial service—a body of men from whom so much was derived in the past towards the increase of our knowledge of plants and their properties.

After LINDLEY's time Mr. J. G. BAKER officiated for some years as lecturer, and his lectures, we know, were highly appreciated.

But we must look forward, rather than backward, and see what is to be done in future, and from this point of view the outlook is decidedly satisfactory. A glance round the garden and its adjuncts is sufficient to show that the arrangements have been made with a definite aim. Sometimes a garden is a mere collection of plants arranged without order or purpose. That is not the case at Chelsea: the garden is not intended as a show garden, nor even as a place of recreation, it is intended for students' use. It is easy for the botanist to see at a glance why any particular plant is cultivated. This is to illustrate some point in morphology, this furnishes specimens for microscopic analysis, that row is for economic purposes—so that a student need not, even though he be a thoroughbred cockney, remain in ignorance of what a Turnip or a Potato is like when it is growing. A collection of Hepaticæ illustrates a feature, the adoption of which we have often advocated in small gardens like this. It would be absurd to attempt even within proportionate limits to emulate Kew or Edinburgh, but there is no reason why each little garden should not have its own specialty. Hepaticæ are to be the specialty here, as the species of Fuchsia are at Strasburg, and as the Stapelias and Nymphæas used to be at Oxford. We have no doubt that under the stimulating influence of Professor FARMER the old glories of the garden will be more than revived, while its practical utility as a students' garden will be materially enhanced. In the meanwhile, we may congratulate the Curator, Mr. HALES, for what he has been able to accomplish in a short time under circumstances which cannot be deemed propitious. But where zeal and interest in the work are present, as is the case here, it is marvellous what may be done to circumvent adverse conditions. Long may the Physic Garden flourish!

CACTI.—**With the present issue we give an illustration of a group of Cacti staged by Messrs. CANNELL & SONS, and which well illustrates the quaintness and variety of forms in these singular plants. They are all adapted for growing under very hot and dry conditions, their thick rind obviating too rapid transpiration, and permitting the storage of large supplies of moisture. In many cases the ferocious spines deter thirsty animals from attempting to quench their thirst at the expense of the plants. In addition to the singularity of their**

Group of Cacti grown by Messrs. Cannell & Sons.

appearance, the flowers are almost always attractive, sometimes gorgeous. We recently figured a group of Echinocacti from the collection of M. DE LAET, of Contich, near Antwerp. Years ago Cacti were in fashion, and it is quite possible they may be so again.

ROYAL HORTICULTURAL SOCIETY. — The next meeting of the committees will be held on Tuesday, August 5, in the Drill Hall, Buckingham Gate, Westminster. A Silver Flora Medal will be offered for the best collection of Cactaceous plants, open to amateurs. For other prizes for Cacti, address Mr. BLOGG, 65, Brighton Road, Croydon. A lecture on "Small Fruits from a Private Garden Point of View," will be given by Mr. J. SMITH, V.M.H., at 3 o'clock.

—— At a general meeting held on July 22, thirty-three new Fellows were elected, making a total of 859 elected since the beginning of the present year.

VICTORIA MEDAL OF HONOUR.—The President and Council of the Royal Horticultural Society have conferred the Victoria Medals of Honour in Horticulture, vacant by the death of Mr. G. F. WILSON, Mr. WM. BULL, and Mr. E. J. BEALE, respectively, upon Mr. JOHN T. BENNETT-POË, Mr. GEORGE MASSEE, and Mr. HENRY CANNELL.

PRESENTATION TO MR. CHAS. WEEKS.—On account of the transfer of Messrs. J. VEITCH & SONS' soft-wooded department to Feltham, Mr. WEEKS, who for some twenty years has had charge of this department at Chelsea, will remove to Feltham. His colleagues and many of his friends desirous of acknowledging his good fellowship and of giving him a capital send-off, assembled on Thursday, July 24, and spent an enjoyable evening together, during which the presentation of a handsome timepiece and ornaments was made to Mr. WEEKS. The proceedings terminated with a vote of thanks to Mr. JOHN HEAL, who had organised the little party and who presided.

MR. J. TUNNINGTON has resigned the charge of gardener to Sir H. INGILBY at Ripley Castle, Yorks, owing to a temporary breakdown in health; and Mr. H. FOX, gardener to the late Mr. LAWSON JOHNSTON, Kingswood, Sydenham, and previously foreman at Ketton Hall, under Mr. W. H. DIVERS, has been appointed to succeed him early in September. Mr. TUNNINGTON'S many friends will join in wishing him a speedy recovery, and a further career of successful gardening, such as he has carried out during the last twelve years at Ripley Castle.

DISTINGUISHED VISITORS AT READING.—His Excellency the KATIKERO (Prime Minister) of Uganda, accompanied by his Secretary and the Rev. ERNEST MILLAR, who acted as interpreter, visited Reading on Monday. The party was met at the station by the Deputy Mayor and Town Clerk, who subsequently received the distinguished visitor in the Council Chamber, where he was introduced to members of the Corporation, and conducted round the municipal buildings. Thence the party were driven to Messrs. SUTTON'S trial grounds, where they were much interested in flowers and vegetables, many of which varieties are now in use in Uganda, and after signing their names in Messrs. SUTTON'S visitors' book, they attended a luncheon given in their honour by Mr. and Mrs. MARTIN SUTTON in the Abbey Hall, to which a large number of leading members of the Church Missionary Society were invited. After the loyal toasts had been duly honoured, Mr. SUTTON introduced the KATIKERO to the assembly, and following speeches of welcome from the Rev. F. T. COLSON and others, the Prime Minister responded in a long and most interesting speech, in which he gave an account of the introduction of the Gospel into Uganda as a result of STANLEY'S first visit, and the subsequent efforts of MACKAY and others. The KATIKERO and party afterwards visited Messrs. HUNTLEY & PALMER'S biscuit factory, and returned to London the same evening.

ANOTHER OPEN SPACE.—The Parks and Open Spaces Committee of the London County Council have suggested another "lung" for London. For a sum of £25,000 the house and grounds known as Avery Hill, Eltham, may now be acquired. Some 84 acres represents the extent of the land area. It is intended to ask the Borough Councils of Woolwich, Lewisham, Greenwich, Camberwell, and Deptford to contribute to the cost of purchase, and alterations necessary for the completion of the scheme.

AN OUTING AMONG SWEET PEAS AT KELVEDON.—On Thursday, the 24th ult., a party including personal friends of Mr. N. SHERWOOD, representatives of the leading London and provincial seed houses, the officers and committee of the National Sweet Pea Society, were, by the kindness of Messrs. HURST & SON, of Houndsditch, conveyed by Great Eastern Railway to Kelvedon, Essex, to inspect the large collection of Sweet Peas growing in their seed-trial grounds at Feering. On reaching Feering, the party had the pleasure of meeting Mr. N. Sherwood there in greatly improved health, together with his sons, Mr. William and Mr. Edward Sherwood, his son-in-law, Dr. Campbell, and others. Luncheon was served to a large party on the grounds, Mr. N. Sherwood presiding. In the course of the proceedings, Mr. Sherwood's health was proposed; and on rising to respond, he received a most sympathetic welcome, and said that though not yet so well as he would desire, he was in the enjoyment of greatly improved health, and was deriving great benefit from a sojourn at Feering with his family. Mr. Edward Sherwood, who had arranged the outing, and conducted the party from London, was also accorded a hearty reception. Luncheon over, a move was made to the plantation of Sweet Peas, now in full bloom, nearly 1,000 samples having been sown, including all the latest novelties and the group of Cupid varieties. A large and representative collection of culinary Peas was inspected by some, and found to be full of interest, being in admirable character. The trials of Beets, Onions, Carrots, Beans, Lettuces, Herbs, &c., were inspected by others, and under conditions of weather which greatly enhanced the pleasure derived from the visit.

THE NATIONAL CHRYSANTHEMUM SOCIETY'S ANNUAL OUTING took place on Wednesday, the 23rd ult., a party of over 100 persons journeying to Paddockhurst, Worth, Sussex, by the kind permission of Sir WEETMAN D. PEARSON, Bt., M.P. Dinner was served in a spacious waggon-shed at Paddockhurst, which was most elaborately decorated by Mr. A. B. WADDS. Mr. THOMAS BEVAN, Chairman of the Executive Committee, presided, supported by Mr. J. H. WITTY (Vice-Chairman), and Mr. J. W. MOORMAN (Treasurer). The gardens and glass structures were inspected, high culture and excellent order were everywhere observed, Mr. WADDS being the recipient of many well-deserved compliments. Some of the visitors were, by the kind permission of Lady PEARSON, privileged to look through the mansion, others found their way through the delightful terrace garden to the cricket-ground in the park, where a cricket match took place between the Paddockhurst Cricket Club and a scratch eleven selected from the visitors. As a result, the home club were the victors by a small majority. One of the chief enjoyments of the day was the drive to and from Paddockhurst along the delightful leafy Sussex lanes. There were collecting-boxes in aid of the Gardeners' Royal Benevolent Institution, but the sum of money given was disappointingly small—some 7*s.* and a button representing the amount!

"DARLINGTON'S LONDON AND ENVIRONS."—This is the fourth edition of a useful and well-known guide-book that foreigners and country visitors to the metropolis would do well to obtain. In its enlarged form, it includes about five hundred closely printed pages of directions and descriptions, with abundant pictures and several maps. It is unfortunate that such a book, thus re-issued, should not in all cases have been brought up-to-date. We note, that Queen Victoria is spoken of in the present tense, as if still alive; while, the removal of the headquarters of the University of London to the Imperial Institute is not mentioned. Indeed, there is an illustration given of its (former) quarters in Burlington Gardens. In the prefaces, some allusion is made to the constant changes and developments taking place in London, but where it is possible to mention these at all, we look for the information in its place in the pages of the guide, not in the preface. However, in spite of these few deficiencies, the book should prove useful to many.

"FOREST FLORA OF THE SCHOOL CIRCLE, N.W.P." . . . By UPENDRANATH KANJILAL: Calcutta Government Printing Office.—This is a useful compilation made primarily for the benefit of the Imperial Forest School of Dehra Dún. It has been prepared by a native of India, and a former pupil of the Forest School. It is based on HOOKER'S *Flora of British India*, and BRANDIS' *Forest Flora of North-west and Central India*, supplemented by the examination of the living or dried plants. Mr. GAMBLE and Mr. DUTHIE have assisted the author. The work consists of a series of analytical keys, by the careful study of which the order, genus, and eventually the species may be determined. Short descriptions of each species are also given, with indications of localities where the species grow naturally. The arrangement is that of the *Genera Plantarum* of BENTHAM and HOOKER. An index of European and of vernacular names is given, as well as a glossary of botanical terms. The utility to forest-students and botanists generally of such a concise, well-arranged manual can hardly be over estimated; but as to particular details, experience in the forest can alone determine its full value. It is clear, however, that the Forest School of Dehra Dún may well feel some complacency at the publication of such a book by one of its own pupils.

"THE COOL JULY."—We notice some correspondence in the *Yorkshire Post* on this subject. Mr. JNO. SNELL, of Farnley Gardens, Otley, relates that in a garden in that town the temperature on Friday morning, the 26th ult., was only 34° Fahr. Another writer, from Snape Castle, Bedale, declares that on the same morning some vessels containing water were coated with ice at 5 A.M., and a field of 8 acres of Potatos in full flower were blackened by frost. A third correspondent, from Rylstone Rectory, Skipton, describes the morning temperature 3 feet from the ground in a sheltered position on July 12 as 33°.

NOTES ON THE KINKELIBA (COMBRETUM).—A recent number of the *Comptes Rendus* includes an interesting paper by MM. E. PERROT and G. LEFÉVRE, on the botanical origin of this West African plant. The authors describe it as being a shrubby plant of variable habit, the leaves of which, being largely employed in local medicine throughout the whole of Western Africa, should be carefully studied again so as to determine their exact therapeutic value. It should not be forgotten during such researches that nearly allied species of Combretum may easily be mistaken for the true Kinkeliba, which is furnished by C. micranthum, Don. The C. Raimbaulti of M. HECKEL is only one of the many forms of this species, are those of our European varieties, being oblong-retuse, with the scar (chalaza) near the top, not in the middle as in the American Grapes.

GARDEN AND FARM PRODUCE BY RAIL.—The Traffic Manager of the Great Eastern Railway Company informs us that the number of "produce boxes" forwarded per passenger train during the first six months of the present year is nearly 84,000, as against 78,000 in the same period last year—an increase of 6,000 boxes.

FRUIT TRADE DEVELOPMENT.—This was the title of a lecture delivered recently at Stanley Street, Liverpool, by Mr. JOHN SCOULER, the chair being occupied by Mr. JUAN M. OLCINA. The lecturer, describing the various fruits, spoke of the rapid popularity of the Banana in this country. Eleven years ago the importation of Bananas into Great Britain amounted to 29,903 bunches, whereas last year we received 3,000,000 bunches from the Canary Isles, and 450,000 from Jamaica. The sale of Tomatos had also grown to enormous proportions.

GALEGA OFFICINALIS.—Mr. BAYLOR HARTLAND sends us from Cork noble specimens of this hardy perennial. It is stated to be of hybrid origin, but the parentage is not stated, and it may possibly be a selected form of the old Goat's Rue. In any case, it is much larger in all ways than the ordinary form; the leaves 6 to 7 inches long, with six pairs of pinnæ, and a terminal one. The long-stalked racemes are very freely produced, each 4 to 5 inches long, with very numerous closely-compacted pea-shaped flowers; the standard bluish-violet, the wings and keel whitish. It is a most attractive border plant, and those who have once seen it are not likely to be happy till they get it.

WALDERSEE ASTER.—Mr. MARTIN GRASHOFF of Quedlinburg, sends us a coloured plate and description of a very dwarf compact Aster. The ray florets are pale rose coloured, with a white margin.

THE ROYAL AQUARIUM.—The proposed purchase of this building by the Wesleyans will now cause the National Chrysanthemum and National Sweet Pea Societies to look out for another place in which to hold their exhibitions. We have always considered the Aquarium most unsuitable for the purpose; but where are the Societies likely to obtain the amount of financial help accorded them by the Royal Aquarium Company? However, the Aquarium is available until the end of the year, and the Royal Horticultural Society's new Hall will, it is hoped, be completed in 1904.

FIG. 27.—THE CEDAR-TREE IN CHELSEA PHYSIC GARDENS—STILL STANDING, BUT DEAD. (SEE P. 78.)

the habit of which is extremely variable according to the conditions of cultivation, exposure, and even according to the season of the year.

THE STRAWBERRY-GRAPE.—Dr. BONAVIA, of Worthing, favours us with a specimen of this little known Grape. Its leaves are less deeply lobed than is usual in Vines, and the lower surface is covered with a thick coating of pinkish-brown down. Bunches 4 to 6 inches long, berries small, about 2 cent. long, oblong-ovoid, black, with a pleasant, acidulous, Raspberry-like flavour. According to BARRON, the Vine is of American origin; but it is not mentioned in the exhaustive catalogue published by BUSH, SON, & MEISSNER, at St. Louis, nor in the *Cyclopædia of American Horticulture*. The ready separation of the pulp from the skin is in favour of this notion, but the seeds

FLOWERS IN SEASON.—Mr. LINDSAY sends us from Kaimes Lodge, Murrayfield, Midlothian, some highly interesting specimens, which may be commended to the notice of connoisseurs:—

VERONICA HECTORI.—A robust shrub, with the dull, smoke-coloured branches marked at narrow intervals with ring-like constrictions. The branchlets ascending, densely packed with appressed, fleshy, decus

sate, roundish, acute, convex leaves, each less than 2 mill. long; the lower ones are glabrous at the edges, the upper ciliated. The flowers are small, white, clustered at the ends of the branches. A very curious shrub, having the same aspect of foliage as some Lycopodiums, or as some of the stages of growth of certain Thuyas. It is a native of the middle Island of New Zealand. See Hooker's *Handbook of the New Zealand Flora* (1867), p. 212.

VERONICA × FLORIBUNDA.—A hybrid raised by Mr. Lindsay at Murrayfield, from V. pimeleoides and another species. It is a branching shrub, with erect, smoky branches, marked at short intervals by prominent rings. The ascending leaves are somewhat loosely arranged in decussate pairs, each leaf sessile, boat-shaped, oblong obtuse, scarcely pointed, about 15 mill. long, 10 mill. broad. The numerous lilac flowers are arranged in numerous stalked racemes at the ends of the branches. It is a very pretty form, and as it is quite hardy, it is well worth cultivating.

CARMICHAELIA ODORATA.—A very curious hardy shrub, native of New Zealand, adapted for dry climates, with stiff, erect, flattened leaf-like stems, and minute trifoliolate, glabrous leaves, with linear, oblong, retuse leaflets. The small white pea-shaped flowers are in short axillary clusters. The valves of the ripe pod fall away from the persistent woody margins. The specimen sent agrees better with C. australis than with C. odorata, but authors admit the difficulty of adequately defining the species.

From Mr. JUSTUS CORDEROY we have received a beautiful flower of—

CEREUS CANDICANS, which is not often seen in gardens, on which account it may be desirable to give a short account of its peculiarities:—Flowers 23 cent. long; tube funnel-shaped, curved, greenish, with numerous spirally-disposed lanceolate acuminate, green, fleshy scales, each about 1 cent. long, bearing in their axils a tuft of purplish hairs, longer than the scales. The scales pass gradually into the sepals, which are about 6 to 7 cent. long, linear-lanceolate, green, flushed with pink. The sepals in their turn pass gradually into the white, papery, obovate petals, which are of about the same length, or rather longer than the sepals, but broader. Stamens very numerous, springing from the tube of the flower for half its length; filaments, thread-like, shorter than the petals; anthers, minute yellowish; style cylindric, 16 to 17 cent. long, glabrous, dividing at the top into about seventeen recurved, villose stigmas, each about 2 cent. long; ovary globose, the size of a small apple, one-celled, with an infinitude of parietal ovules. The species is said to be a native of Chili. The plant, which is some sixty years old, is about 54 inches high, and 5 to 6 inches in diameter. Mr. Corderoy has a second specimen about 6 feet in height, originally procured from Messrs. Lee, but it has not flowered.

PUBLICATIONS RECEIVED.—*Notes on the Commercial Timbers of New South Wales*, by J. H. Maiden. This treats of the forest wealth of the country, of timber for export, value of many of the timbers as yet unknown, common and botanical names of timbers, and other branches of the subject.—*The Journal of Agriculture of Victoria*, March. This deals with live stock and dairy subjects; also with such considerations as Cabbage for Dairy Cattle, Treatment of Vintage by Diffusion (continued), by Pierre Andrieu; Reconstituting old Orchard and Garden Land, Spraying and Cleaning of Fruit-trees, Beet-sugar Industry at Maffra, Forage Plants, &c.—From the New York Agricultural Experiment Station, Bulletin No. 212. *Miscellaneous Notes on Injurious Insects*, II. 1, The Periodical Cicada; 2, Palmer Worm; 3, White Grubs attacking Aster Plants; 4, Papilio asterias attacking Celery.—Also Bulletin No. 213. *Treatment for San José Scale in Orchards*, II. Spraying with kerosene and crude petroleum.—*Cassell's Dictionary of Gardening*, edited by W. P. Wright, Pt. 14, Ornithidium to Phyllocactus, with a coloured plate, and many illustrations (Cassell & Co., London, Paris, New York, and Melbourne).—*The Queensland Agricultural Journal*, May, contains Lessons on First Steps in Agriculture (continued), by A. J. B.; Queensland's Agricultural Resources and Disabilities; Maize-blight; Flax Culture, and the usual Notes on Dairying, The Orchard, Viticulture, &c.—*Bulletin of the Botanical Department, Jamaica*, May; Contents: Tobacco, Varieties of Banana, Pine-apples, Importations of Cocoa Plants, Oil from Citrus Peel, &c.—*Sunset: a Magazine of the Border*, June, includes articles on California Mountain Wild Flowers, by M. C. Frederick, illustrated from photographs; Luther Burbank, by E. J. Wickson; Sugar Beets at Oxnard, by E. H. Enderlein, and other illustrated articles of general, not horticultural, interest.—From the Michigan State Agricultural College, Entomological Department: Bulletin 200, May, *Some Insects of the year* 1901, by Rufus H. Pettit.—*Bulletin of the Botanical Department, Jamaica*, June; Contents: Report on Cassava, The Orange in S. California, Watering Young Trees and Shrubs, &c.—*Agricultural Gazette of New South Wales*, May.—*Agricultural Bulletin of the Straits and Federated Malay States*, May.—*Nature Notes*, July.—*Jahresbeincht der Bayerischen Gartenbau Gesellschaft*, 1901.

PHŒNIX CANARIENSIS IN CALIFORNIA.

As will be seen from the illustration of Phœnix canariensis (fig. 28), it is admirably suited for out-of-door ornamentation in the "Golden State" of California. It is perhaps the most extensively planted (as well as the most beautiful) Palm in the State. As an avenue tree it has no equal, a great many of the streets and private driveways are set out with it. The plants make rapid growth, and soon attain beautiful proportions. They are very hardy, being able to withstand considerable frost.

The Phœnix dactylifera (fruit-bearing variety) is also planted, but not so extensively as P. canariensis. In the southern part of the State and in Arizona, the P. dactylifera is being planted for commercial purposes. The government has recently obtained from Northern Africa, suckers of the best bearing sorts, and are disseminating them, male and female, to anyone who applies for them. This will, no doubt, have a tendency to further the planting in this State, and the laudable enterprise ought to be fostered.

Phœnix reclinata is also planted for decoration, but is rapidly being superseded by P. canariensis. *J. V.*

FIG. 28.—PHŒNIX CANARIENSIS, OAKLANDS, CALIFORNIA.

PLANT PORTRAITS.

BEGONIA PERLE LORRAINE.—A cross between B. Dædalea and B. polyantha. *Revue de l'Horticulture Belge*, July.

BIBLYS GIGANTEA, Lindley.—*Garten Flora*, July 1, 1902.

DEUTZIA CORYMBIFLORA.—*Revue de l'Horticulture Belge*, July.

ERICA MAMMOSA VERTICILLATA MAJOR.—*Revue Horticole*, July 1.

PEAR OLGA WILLEMS, *Bulletins d'Arboriculture*, &c.—A large and fine fruit, ripening in January, and hence valuable as a late Pear. It is a seedling from Bésy de Chaumontel.

PLUM, COE'S GOLDEN DROP, *Bulletins d'Arboriculture*, &c., June.—Raised by Coe, of Bury St. Edmunds, out of Reine Claude by Magnum Bonum.

PRUNUS MYROBALANA VAR. PLANTIERENSIS.—A form with double flowers. *Wiener Illustrirte Garten Zeitung*, June, 1902.

RHAMNUS CAROLINIANUS.—*Meehans' Monthly*, June.

ROSE FRAU KARL DRUSCHKI (MRS. CHARLES DRUSCHKI), *Moniteur d'Horticulture*, May 10.—A white hybrid perpetual, raised by M. Lambert of Trèves, and as lately exhibited in London, a very beautiful Rose.

TETRATHECA ERICIFOLIA, *Revue de l'Horticulture Belge*, June.

XYRIS FLEXUOSA, *Meehans' Monthly*, May.

LAW NOTES.

ON the 16th ult., at the Surrey Assizes, Mr. S. Bide, nurseryman, of Farnham, successfully sued Mr. E. C. Charrington, the owner of Frensham Hill Estate, for a sum of money for supplying and planting Scotch Fir-trees. Defendant counterclaimed to have the amount reduced by £50, alleging that the plaintiff was unskilful and negligent, that the trees had not been previously transplanted a sufficient number of times, and were therefore deficient in fibrous roots, that they should not have been transplanted so late as March, and that he allowed a large number of them to remain for two or three days unplanted, with their roots exposed to the frost. Plaintiff, however, suggested that the explanation of so many of the trees dying was the exceptional drought of last summer, and pointed out that as there was no contract until March, the planting could not have been commenced earlier.

Evidence on behalf of defendant was given by Mr. Chas. Edwards, defendant's head gardener; W. Hawthorne, another gardener in defendant's employ; W. Cranham, gardener to Mr. Stanhope Ware; Prof. W. Schlich, &c.

The Week's Work.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Watering.—The work of affording water to the plants is a matter of very great consequence at this season, and upon the manner in which it is done will depend the degree of satisfaction the plants will yield when in flower. It would be misleading to advise that this or that variety should be given water freely, because in all collections there are weakly plants that require extra care and moderation, whilst strong plants of the same species would be benefited by copious supplies. Again, some plants will be in a very much more forward state of growth than others of the same variety. The cultivator must learn by observation when a plant needs water, remembering the rule that when root-action is greatest most water is required. The following varieties, if in good health, would, generally speaking, be benefited at the present time by copious supplies of water:—Cœlogyne cristata and its varieties, Anguloa Clowesii, A. eburnea, Lycaste Skinneri, L. leucantha, L. Deppei, L. costata, L. candida, Cymbidium Traceyanum, C. giganteum, C. Mastersii, Sobralias generally, Zygopetalum Mackayi and varieties, Cypripedium insigne, C. Spicerianum, and all other varieties now fast developing their growth; Odontoglossum Harryanum, and other species that have not yet finished their growth nor flowered. Many of the Dendrobiums of the deciduous or semi-deciduous section have progressed further, and should be afforded rather less water, or otherwise second growths may be induced, and these are generally undesirable. The plants may remain in the same house till the new bulb is completed, and by giving them less water as soon as the terminal leaf is observed, second growths are likely to be prevented without any check being given to the running out of the new bulb.

Calanthes.—Until the full development of the new pseudo-bulbs, healthy plants should never be allowed to become quite dry. The pots being full of roots, they will require much water, and many growers advocate liquid-manure at this stage. No doubt larger bulbs can be obtained by such means, but I prefer not to use it, believing that a large proportion of the black rot so often seen in the bulbs of Calanthes originates from the use of manure-water. A clean, hard bulb is better even if it is not half the size than one fed on manure-water, and therefore liable to the black rot. If the plants are grown without the aid of manure, the flowers are generally of much more substance, and are produced closer together on the spikes.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Grapes now Ripening.—Exceptionally cold weather in June and July has caused more fire-heat to be used; but reduce this whenever warm weather permits, it being undesirable to hasten the ripening. Keep the ventilators open a little at all times, increasing the amount early in the morning if there is sunshine. Maintain a night temperature of 60° for Hamburghs, and 65° for Muscats, with 10° to 15° higher in the daytime. The Grapes swell considerably whilst colouring, and the atmosphere should be kept moderately moist at first, gradually reducing the moisture as the berries commence to "finish." The border having been given Vine-manure and a thorough watering when the Grapes began to change colour, it is not likely to require more, unless the Grapes are kept hanging very long. In this case, if the border gets too dry, the Grapes will shrivel. If the inside border be covered with hay, it will reduce evaporation, and keep the roots moist for a longer period of time. Shorten lateral growths as needed, and afford the main foliage sufficient room, keeping it clean and healthy. When Black Hamburghs are ripe, and it is necessary to keep the crop hanging for some time, shade the vinery with tiffany, otherwise the Grapes will lose colour.

Early forced Vinery.—If this has inside and outside borders, and it is necessary to do anything to the roots of the Vines, only one border should be treated this season. The work should be commenced when the wood is ripened, but before the foliage falls. Carefully preserve the roots when removing the soil, and tie them up in some damp material until they are again planted. If the border is a deep one, make up the drainage to within 2½ or 3 feet of the surface, keep the roots near the surface, placing amongst them fresh turfy-loam well mixed with bone-meal and Vine-manure. The house must be kept cool, and the Vines thoroughly at rest until it is time to start them into growth, which had better be a little later than usual.

Young Vines that were Planted in May or June should be encouraged to make all the growth they can. A little more Vine-manure may be spread over the surface of the border and watered in; syringe the canes twice daily, and keep the atmosphere moist.

Vines which have just yielded a Crop.—The vinery started early in the year, and from which the crop has been cleared, may be frequently syringed, using an insecticide if there are any insect pests on the canes. Attention must be given to the ripening of the wood, particularly if the growth is strong. Keep the atmosphere of the house warm through the day, and afford plenty of air at night. Thin out lateral growths, leaving sufficient only to prevent the main buds from breaking into growth. The border should not be allowed to get very dry, but may be afforded a copious supply of weak cowshed manure-water when water is necessary.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Early Potato Crop.—Lift any portion of this crop still in the ground, and so set the land at liberty for further cropping. Failing a proper Potato and root-house, place all the tubers of a serviceable size for cooking in a cool, dark outhouse or cellar until required for use. Allow the seed tubers to remain on the ground for a short time only, as when they are left to "green," as some gardeners prefer, it is difficult to detect the disease, should this appear. When lifting the Potatos, move the ground also between the rows; this will render further digging of the land unnecessary previous to recropping. Clear off the haulm and burn it.

Spinach.—Make a sowing for providing supplies in autumn and early winter. Sow the seeds in drills at 18 inches apart, and in the event of hot dry weather, water the drills two or three times over previous to sowing, and where practicable cover the ground with garden-mats until the seeds have germinated. Any piece of ground from which Peas or Potatos have been cleared will be suitable for this sowing, reserving a warmer and more sheltered border for a later sowing to be made about the middle of August. Round-seeded Spinach is equally suitable for winter use as it is for summer use, Victoria being an improved variety.

Turnips.—Make a moderate sowing of these forthwith, arranging at same time for two later sowings. For present sowing, Snowball is the most suitable variety. A fortnight hence sow also Veitch's Red Globe, Chirk Castle, and Orange Jelly; and Snowball again the third week in August. Unless the weather is severe this last sowing can be left in the ground till Christmas. Should they be a little undersized, they are mild, and possess the fresh flavour peculiar to newly-pulled Turnips. The varieties Chirk Castle and Orange Jelly are quite hardy, and may be left in the ground until they show signs of beginning to grow. The two earlier sowings should be made in rows at 18 inches apart, and the last sowing at 15 inches apart.

Horn Carrots.—Make a plentiful sowing on a warm border where a little dry protection in the way of half-rotted tree-leaves or bracken will not be an eyesore. This is one of the most useful of winter crops. Sow thinly in rows at 1 foot apart, and simply single out the plants as soon as they are strong enough to draw.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Budleigh, Devonshire.

Morello Cherries.—As the fruit is now colouring, the trees should again be looked over, tacking in any growths that may have been left on the last occasion, and dipping the points of the shoots in quassia or tobacco-water if they are infested with aphis. We have to net this fruit here as soon as it shows the least colour, or the blackbirds and thrushes would quickly spoil the crop.

Peach-trees.—Continue to train the leading shoots, allowing space for each to swell. Pinch out the points of extra strong shoots, and remove all laterals that show throughout the season, unless it be in the case of young trees, and it is deemed expedient to cover a piece of wall as quickly as possible; then those that start nearest the base of this year's growths may be fastened in. As a rule, however, this treatment does not produce such well-balanced trees as when the shoots are cut back to the desired bud in early spring, the right time to lay the foundation of a tree, providing disbudding of the shoots is carried out in a practical manner. Unless in the case of the very early varieties there need be no hurry to expose the fruits to full sunshine for two or three weeks, for if the leaves are tucked back they get displaced with syringing; and if several are tied together they become infested with spider whilst cutting them off, or even part of them at so early a date, or at any time, is, I consider, contrary to sound practice.

General Work.—Early ripening Apples, such as Irish and Early Peach, Red Astrachan, Lady Sudeley, Mr. Gladstone, and a few others, will need protection with a net, or the birds will spoil the best as fast as they become fit. Similar remarks apply to several of the earliest Plums, as Rivers' Early Prolific, Stint, and Czar, the former a profuse bearer, ripening with us usually in the first week of August on an east wall. It is not a large fruit, but it is useful for tarts at this date; and when thoroughly ripe is not to be despised for dessert. Keep a sharp look-out for wasps'-nests, which are already to be found here. We have destroyed two by pouring half a pint of coal-tar into the mouth of the hole about 9 P.M., when the major part of the wasps were at home. We do not find it necessary to put any turf over the hole, or to dig them out, and two men, one of whom carries a lamp, and the other the tin of tar, can in a couple of hours destroy a considerable number of nests within a radius of half a mile.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Richardias.—The pot tubers of R. æthiopica should now be sufficiently ripened to allow of their being shaken out and repotted. I prefer to shake them entirely free from the old soil and to sort them into sizes suitable for the pots to be filled, potting at once into the flowering pots. For good single crowns 7-inch pots will suffice, the smaller crowns being reserved for 6-inch pots, which are big enough for growing plants of a useful size. If specimen or bold plants are to be made up for any special purpose, three or four strong crowns, all of equal development as to both size and ripeness, should be selected, as they will then come away together and form a symmetrical plant. Use a good rich compost containing plenty of sand and decayed animal manure, and, after

potting, place the plants in a frame where they can be protected from heavy rains. Afford them very little water until a number of new roots have been made.

Roman Hyacinths.—The earliest bulbs of these will now be to hand, and they should be at once potted or boxed up, using for the purpose a sweet sandy soil that is known to be free from eelworms or bulb-mite. Where large quantities have to be forced, the boxing-up system is the most convenient, as the plants lift readily when in spike, and pots of bulbs of equal development may then be made up if required. The soil used should be in a moist condition, when no watering will be necessary at present. I cover the bulbs with an inch or two of fine ashes, using, for preference, some that have been exposed for months to the air and rain. Ashes from coke or anthracite coal should on no account be used.

Tulips.—The remarks on Roman Hyacinths apply equally to Tulips. It is important for the grower to urge early delivery of the bulbs, and when they arrive to get them into the soil again without delay.

Narcissi.—These useful bulbs do equally well in pots or in deep boxes, but as they do not take so kindly to root disturbance as the two foregoing, it is necessary to put them directly into the receptacles in which they are to perfect their flowers. Of Polyanthus Narcissus there should be plenty of the improved form of Paper White and of Soleil d'Or for the earliest work, but to succeed these the grand late varieties Gloriosus and Grand Monarque are magnificent.

MAKING NEW PLANTATIONS OF STRAWBERRIES.

Plantings of the best varieties should be made annually as soon as good rooted runners are available, destroying an equal number of plants which have borne three crops of fruit as soon after the crop has been taken as possible; in short, planting out and destroying an equal number of plants annually after the first plantation has fruited three years. The earlier the runners are planted the better. It is essential that the plants be set in ground into which a liberal dressing of well-decayed farmyard or stable manure has been deeply dug or trenched a short time before planting. The soil that Strawberries, like fruit trees, delight in is a rich loam, inclining to be heavy rather than light in texture.

The young plants should be taken up with little balls of earth attached to the roots, and be transplanted in triangular patches of three plants in rows 2 feet apart, and at the same distance from patch to patch in the rows, allowing a space of 4 or 5 inches from plant to plant in the individual patches. Make the soil firm about the roots in planting, afterwards treading all over the surface between the rows and plants so as to make the soil moderately firm. In the absence of rain falling at the time of planting, apply water to settle the soil about the roots, repeating the application under like conditions and sunshine, three or four afternoons in succession, by which time the roots will have taken hold of the fresh soil. After the first watering, a surface-dressing of short dung should be laid on to the thickness of 2 or 3 inches between the rows and plants. All runners should be kept persistently pinched or cut off as soon as they appear. The plants will then make strong, well-ripened crowns that will produce strong spikes and trusses of flowers in due time, which, if weather permits, will yield heavy crops of fruits as a matter of course. The ground should at all times be kept free from weeds.

In the spring, cut off all decayed leaves, and should the ground in which the plants are growing happen to be of a light nature, shallow, and resting on a gravelly or chalky subsoil, water must be applied at the roots occasionally in order to preserve the soil uniformly moist about them. When the fruit is swelling a few good waterings of liquid-manure will conduce to heavier crops and larger fruits being secured. Clean straw, stable litter, or short grass should be placed under and between the plants a short time before the fruits begin to colour, in order to prevent them coming into contact with the ground.

The following six varieties may be relied upon for yielding an early and extended succession of fruit of good all-round quality, Royal Sovereign, Sir Joseph Paxton, Auguste Nicaise (a free cropper, producing fruits of immense size in profusion), Sir Charles Napier, Oxonian, and Helen Gloede. To the above list might be added the Royal Hautbois—an old, and in some places, highly valued Strawberry, which yields with perfect freedom heavy crops of brick-coloured fruit of peculiar but fine flavour, and high aroma. The foliage and habit of growth of the Hautbois are quite distinct, and, apart from the peculiarities of the fruit, render the plants easily recognisable from every other variety of the Strawberry in cultivation. One or two rows of it will, however, be enough to grow of this variety, planting and destroying a row every year, in order to always have strong fruitful plants. I should say that Oxonian and Helen Gloede should preferably be planted in a border at the north side of a wall or fence running east and west, in which position the plants will continue longer in fruit than they would in the open. *H. W. Ward.*

IRISH FORESTRY.

An interesting lecture was delivered recently at the Delgany Nurseries, co. Wicklow, by Mr. A. D. Richardson, late of the Royal Botanic Gardens, Edinburgh, on "Evergreens, Flowering Shrubs, and Forestry," through the courtesy of Messrs. Pennick & Co., proprietors of Delgany Nurseries. The Delgany Nurseries possess most picturesque attractions, and are situate 400 feet above the sea-level. Indeed, an eminent British botanist has remarked the place is an ideal spot for the growth of healthy trees, exposed to north-east, and within two miles of the brisk sea winds, with a soil that imparts great vitality without rapid growth or pampering. Mr. Hume Bland of Kilquade presided.

Mr. A. D. Richardson, in the course of his lecture on "Evergreens, Flowering Shrubs, and Forestry," said that they would all agree with him that, however interesting the subject "Evergreens and Flowering Shrubs" was, "Forestry" was of far greater importance to this country. The soil and the climate of Ireland were suitable for forestry; in fact, he could not name a species of tree or shrub, or anything that was hardy that grew out-of-doors, that would not flourish in Ireland. They had in Ireland a somewhat humid climate, compared with that on the coast of England or Scotland. The climate of Ireland was eminently suited to the growth of Spruce. When properly grown, it was a tree that gave the greatest volume of wood per acre. There was a great deal of waste land in Ireland which would be better under timber, as they sent enormous sums of money annually out of the country for timber which could be grown at home. They were a long way behind Continental countries in the matter, and it was only now that the question was becoming acute. A sum of £26,000,000 a year went to the Colonies and other countries for timber. Of that sum £12,000,000 went to Sweden, Norway, and Russia for Pine wood. They could as easily grow as good timber as was produced in continental countries if they put their woods under a more rational system. On the Continent the soil which was too damp for one species of trees was planted with trees suitable for the locality. The tree was adapted to the soil, and not the soil to the tree, as was often attempted in draining.

As for ornamental trees and shrubs, he expressed surprise to find growing in that nursery specimens of such enormous size, and exceeding any which he had seen before. He mentioned several plants which he had found growing in the open in the nursery, which could not in most parts of England and Scotland be grown except under glass. As for the Rhododendrons, they were the finest specimens he had ever seen.

In connection with the planting of trees in towns in Ireland, he did not know if the same conditions obtained in this country as in cities like London, Manchester, or Leeds, where the atmosphere was polluted with impurities. When electric light was introduced, and the gas-pipes which were underground were done away with, the trees would have a better chance of living, as they would not be ruined by the escape of gas. The most suitable species of tree for town planting was the "London Plane."

Mr. Lambert Jones, in proposing a vote of thanks to the lecturer, said Ireland was eminently fitted for producing resinous trees. The winter temperature o county Dublin was 2° higher than that of Bournemouth. He considered physicians made a mistake in sending patients to Bournemouth, as the temperature was more equable throughout the year in the central district o the east coast of Ireland. The rainfall also was several inches less, being 28 inches, although in three-fourths of England it was 33 inches to 45 inches. The district of the metropolis in each island was drier than the rest. Indeed, the centre of the east coast of Ireland was remarkably blest both in soil and climate. In the region from, say, Dunleer to Gorey, and inland for about 30 miles within the latitude of those places, including most of Meath and Kildare, and the whole of the superb county of Dublin, and the belt of the beautiful land 8 or 10 miles along the coast of Wicklow, we possess a soil and climate which have none to surpass them in any part of Europe. The very bogs of Ireland were reservoirs of health, and by lowering the drainage of the Barrow and Shannon, we could heighten the advantages derivable from the Bog of Allan. These bogs should grow the Spruce and Pine tribe admirably, also the Laurel and Rhododendron. Lands which in other European countries, and even in England, were marshy and miasmatic, were in Ireland redolent with health. The saline breezes of the Atlantic stream and the tannin of the bogs, mixing with the heathery balm of mountains, render a combination which makes Erin matchless in the vitalising qualities of the atmosphere—an excellence which the comparatively land-generated airs of the Continent cannot yield. If we could largely add to these the odour of Coniferæ, we should attract the valetudinarians who distribute much wealth in seeking health.

The effect of plantations on the rainfall of our western counties should be tried, as the question is not decisively ascertained at present. In any case, the hardy Coniferæ should enhance Ireland's salubrity anywhere, and make West Cork, Kerry, and Clare the sanitoria of Europe.

One result is certain: the shelter produced must create admirable localities for growing Potatos and other early vegetables for the British market. The fencing difficulty was initial in a great cattle-rearing land like Ireland, and herein he submitted to public consideration that the aid of the Agricultural or other Government Boards could be legitimately employed to help individual efforts.

Mr. Richardson had spoken of the needless importation of timber. This importation could be reduced by one procedure only, viz., by such plantation as would correct branching or stem shoots. If trees are allowed to grow knotted, we cannot have eligible timber; the stem or trunk timber is depreciated 60 per cent. for joinery uses. He suggested close or shady plantation. The speaker suggested that peasant children could be employed in removing the shoots. Timber so produced will open vast industries in woodwork, a possibility well sustained by Ireland's resources in water power, rendering sawing on the spot probable, and thus amazingly enhancing profits to the grower by reducing cost of transport.

HOME CORRESPONDENCE.

The Potato Disease.—On the 14th ult., I saw evidence in a Surrey garden of this fell-pest of the most alarming kind, and when it presents itself so early in one locality, and it was not a damp low lying spot either, it is reasonable to suppose that it may be found elsewhere. Whilst we are so ready to employ all sorts of expensive or patent insecticides, we seem to be very slow to employ undoubted fungus remedies, yet we know that we have in the Bordeaux Mixture one of the most potent of remedies for the Potato disease. How few employ it! Of late we have seen very little of the black spot in the leafage prior to the end of July, therefore their appearance so early in the month is ominous. It is a matter for wonder, how many Potato growers are, in face of a possible visitation, preparing Bordeaux Mixture, and also the needful spraying appliances. So far the black spot has been restricted to the early varieties, but the later ones will not escape, and it is to those breadths ere they be attacked, which should be sprayed. It is true that because Potatos now are, at

least of the later varieties, generally held to possess material disease-resisting properties, growers view the application of spraying remedies with considerable doubt. But even if tubers be not much diseased even when the leafage is severely so, yet the early loss of the foliage causes great loss of weight and of quality in the tubers, and it is known that a couple of Bordeaux Mixture sprayings, one at the end of July and the other early in August, will help to retain leafage green and vigorous some three or four weeks longer than is the case when no remedy is applied. There is little hope that the Potato fungus will be in this country universally attacked and destroyed until such action is made compulsory. *A. D.*

COUCH-GRASS.—Being greatly interested in the correspondence upon Couch-grass, I may say we took possession of these gardens a year ago last October. They were then fields quite grown over with Couch-grass. To make matters worse, the land had been ploughed up for fallowing after harvest, and allowed to grow again, which produced double the crop. We began to fork it out in January, a long and costly operation. After the kitchen and herbaceous garden had been cleared, about a foot of additional soil was carted on; most of it was heavily manured with pig-manure, and planted with Potatos, which were hoed and earthed up in the ordinary way. On the parts that were manured well, a good crop was obtained, but where no manure was put, there was utter failure. However, our object was attained, the ground being worked so often, and against the Potato haulm, the Couch could make no headway at all. This year it has scarcely made an appearance. Of course, the additional soil was put on in order to make the garden, but no doubt it assisted to smother the runners of the grass that might have been left. I think there is no better method of destroying Couch-grass than forking it out, and where it is possible, to manure the ground well after and grow Potatos upon it. *B. Bowyer, Morton Hall Gardens, Swinderby, Lincoln.*

SPECIMEN ARAUCARIA.—I am very sorry to hear of the death of the fine Araucaria at Dropmore, but I hardly think it deserves to be called "The noblest of its kind in the country," without some word of qualification, such as "one of the noblest." The Araucaria at Woodstock, Innistioge, the residence of the late Lady Louisa Tighe, is, if not quite as fine as the one at Dropmore, at all events, very nearly as fine a specimen, and it would be interesting to know its present dimensions, for now that the Dropmore tree is dead, it must be quite the finest in the kingdom, and I sincerely hope it may long continue to be so. I visited both these fine trees some years ago, and remember being quite uncertain which of them was the finer specimen, though, if I remember correctly, from the dimensions then given to me, one had rather the advantage in height, while the other was of greater girth of stem or spread of branches, I forget which; so that, on the whole, they were about equal. As to the origin of the Dropmore tree, the statement that it was purchased at a sale at Chiswick in 1827 is quite new to me, as I always heard that it was one of the first six introduced by Captain Cook, and given by him to King George III., who presented it to his friend, the late Lord Grenville, who planted Dropmore. *W. E. Gumbleton, Belgrove, Queenstown, Ireland.*

A DRILL HALL VEGETABLE EXHIBITION.—In response to a memorial signed by some sixty members of the Fruit and Vegetable Committee, Fellows, and others, interested in high class vegetable culture, and by Messrs. E. Beckett and A. Dean, recently presented to the Council of the Royal Horticultural Society, asking that body to arrange in future years for the holding in the Drill Hall or elsewhere of one special exhibition of vegetables annually, as vegetables at present receive practically no such encouragement at the hands of the Society as is given to other and less important products. The following reply sent by the Secretary, the Rev. W. Wilks, has been received: "The Council have had your memorial as to vegetables before them at two sittings, and have very carefully considered it. They have concluded that to have a really representative collection of different grades, would require more room than can be given at the Drill Hall, and for this and 'other reasons' they desire to postpone the further consideration of the matter until they have their own hall." With respect to the one reason given above, lack of room, that is far from being satisfactory. When the Council accommodates the Dahlia Show, it is not logical to assert that it cannot accommodate a vegetable show at the Drill Hall. No one has suggested that collections should be unlimited. The object was to secure representation of the very best vegetables in cultivation at the season the show was held, whether in summer or in autumn. Of course, for such show a schedule would have been drafted to fit the Drill Hall, and I am sure that Mr. Wright would have found room for it. What the "other" reasons referred to are I cannot traverse, as they are not stated. Hitherto the only vegetable exhibitions in London have been those provided at the Royal Aquarium in October and November. Now that the Aquarium is to go through a process of spiritual as well as material conversion at the close of this year, those shows will there be no longer possible; and the great metropolis, although it houses the Royal Horticultural Society, will then not have any vegetable exhibition in its bounds. Yet vegetables are not only the most important of all garden products, but they now constitute the most valuable of all human food. I am profoundly disappointed at the refusal of the Council to do the small thing for vegetables thus asked. I fear these products lack on that body the favour so freely bestowed on useless though pretty flowers. *A. D.*

MARKET PRICES.—I have enclosed a document for you to see how market gardeners get on in the London market. The 32 hampers of Cabbage contain from two to three dozen each. The Peas are 2-bushel bags, containing 64 lb. each, and I paid for gathering 1*s.* a bag; now there is carriage and commission to come off, so there will not be 1*d.* a peck left for me to pay rent, seed, labour, &c.

1902.

July 14.—20 hampers Cabbage, at 2*s.* 9*d.* ...	£2	15	0
,, 16.—40 hampers Cabbage, at 2*s.* 6*d.* ...	5	0	0
,, 18.—32 hampers Cabbage, at 2*s.* 6*d.* ...	4	0	0
,, 18.—11 bags Peas, at 2*s.*....	1	2	0
,, 18.— 2 bags Broad Beans, at 3*s.*	0	6	0
,, 19.—20 bags Broad Beans, at 2*s.* 6*d.* ...	2	10	0
,, 19.—40 hampers Cabbage, at 2*s.* 6*d.* ...	5	0	0
	£20	13	0
Carriage...	£1	2	9
Commission	4	2	6
Cheque	12	7	9
	£20	13	0

The two bags of Broad Beans are good, but I am afraid the twenty will not pay much. *A. B.*

—— On the 15th ult. I sent to a leading firm of salesmen at Covent Garden the following flowers, carriage paid:—Seven dozen bunches Sweet Peas, two dozen bunches Candytuft, two dozen bunches Shirley Poppies, one dozen sprays Stephanotis, and about 110 spikes double white Stock. The above are priced in your last week's issue as follows: Sweet Peas, 1*s.* to 3*s.* per dozen bunches; Stocks, 3*s.* to 6*s.* per dozen bunches; Stephanotis, 1*s.* to 2*s.* per dozen bunches. Taking your lowest quotations, I should have received £1 15*s.* for the above alone, not counting the Poppies and Candytuft. What I actually did get was 3*s.*, less 4*d.* commission, and I must arrive at one of two conclusions—either that your quotations are altogether above the market price, and thus very misleading to any of your readers that rely on them; or else that the firm I sent to kept back the greater part of the proceeds for themselves. I should be glad if you would explain this to me through your correspondence columns next week, giving the initials *X. Y. Z.* [We every week renew our statement that we accept no responsibility for market quotations. They are supplied by gentlemen connected with the market, but we have no means whatever of verifying the quotations. ED.]

APPLE FAILURES.—It will be interesting to notice the reports of the fruit crops this year, especially of the Apple. Throughout Scotland, so far as I can gather, this crop is light, and will not reach an average. In recording for myself I would be able to report rather over, although in places similarly situated in the district the crop will be under an average. The trees that were heavy last year with me are, with few exceptions, almost blank; while others that were light have an abundant crop. The exceptions are Stirling Castle, Lane's Prince Albert, Lord Suffield, and Kerry Pippin, which are heavy this year, as they were last. These varieties make very little wood, which may in a measure account for their precocity here. The question I desire to ask is this: Can the weather be the cause of the general failure? I presume the verdict will be unanimous that it is! Then if it be the weather, why was the blossom on one tree totally destroyed, and that of its neighbour fully preserved. At the risk of receiving more outrageous epithets than blessings, I say the weather receives far more blame than it deserves, while the grower, who is the chief sinner, often goes scot free. Where the soil and situation are favourable for Apple-culture, and good varieties that have been worked on suitable stocks are grown, the loss of a season's crop may often be attributed to greed and neglect rather than to adverse climatic conditions. The two trees I mentioned as illustration are of the same variety—King of the Pippins—growing side by side under similar conditions. The trees both showed a profusion of bloom at the same time, and now one is fruitless and the other bearing a full crop; the fruitless tree bore an extra heavy crop last season, while the other had a very light crop—the result of an attack of red-spider the year previous. There is no doubt had these trees been both lightly cropped last year, they would have borne equal crops this season, showing the weather was not at fault in this case. Sometimes abnormal frosts occur in May, cold enough to destroy the blossom of the hardiest, best-conditioned trees; but that is a rare occurrence. I hold, however, that trees in a healthy state are better able to withstand adverse conditions during the setting period than are those of similar varieties in a weakly condition from over-cropping or infestation by insects. If that be so, then the remedy for a biennial crop rests with the grower, and is found in proper thinning of the fruit, keeping the foliage and wood clear of insects and fungi, and in maintaining vigour and stamina in the trees by the judicious application of the proper manures at the right time and in the right way. *W. W., N.B.*

POT VINES AT CARDIFF CASTLE.—These are the finest examples of successful cultivation I have ever seen. Grown in 12-inch pots, with rods about 10 feet in length, they are carrying from twelve to eighteen bunches of beautifully finished Grapes. The bunches will average quite 1½ lb. each, many are over 2 lb.; they are marvellous examples of skilful cultivation, and the varieties are not those usually grown for this purpose. Black Hamburgh and Foster's Seedling are the best known sorts for pot culture, and for very early forcing the best. Mr. Pettigrew grows Appley Towers, Alnwick Seedling, Black Morocco, Golden Queen, and Madresfield Court. Alnwick Seedling and Black Morocco are usually considered very bad setters, but here these varieties in pots are everything that could be desired. The new Grape Diamond Jubilee was fruiting in one of the vineries; it is certainly different to the Black Morocco, both in foliage and fruit, also in flavour. It may improve on further acquaintance; at present I do not form a very high opinion of it. In one of the Melon-houses, Mr. Pettigrew has a fine crop of his new Melon Royalty, a very handsome fruit, beautifully netted, and a fine golden colour, of good flavour. *J. R. Petch.*

SWEET PEA DOROTHY ECKFORD. — At a meeting of the committee of the National Sweet Pea Society, held on July 15, no fewer than five pure white Sweet Peas were shown. These were named White Queen, White Wings, Lily, Purity, and Dorothy Eckford, and all were identical. Each had come with seeds of the variety Miss Willmott, and some discussion took place as to which name should be recognised. It was eventually decided that if Mr. Eckford could prove to the satisfaction of the committee that the seeds of the white variety were accidentally mixed with those of Miss Willmott, the Certificate of Merit should go to him as raiser. This Mr. Eckford has done, and the accepted name is Dorothy Eckford. The exhibitors, Messrs. Dobbie & Co., Hobbies, Ltd., I. House & Son, and Jones & Sons, will, it is hoped, recognise this name, so as to prevent needless multiplication of names. *H. J. Wright, Hon. Sec.*

THE WILLOW HERB.—Just now may be seen on the site of a partially cleared Fir-wood just above Woking, Surrey, and on the right of the South Western Railway going down, a big expanse literally covered with Epilobium angustifolium that presents one of the most beautiful wild flower spectacles to be seen in the kingdom. The area is probably some two or three acres in extent, and is covered entirely with the Willow Herb. The plants seem in the somewhat arid soil to be from 18 to 24 inches in height, the flowers of a bright rosy-red, and presenting a mass of colour so beautiful as to call for the warmest admiration. Nature students may well travel from London to Woking per rail, for the floral sight seems to be visible from the railway only. As presented in this case, the Epilobium seems to offer charms for wild gardening such as few yet have realised. In any case, here it is not a coarse weed, but a lovely flower. *A. D.*

MR. DAVID MURRAY, OF CULZEAN, who has just been awarded the "Neill Prize" by the Royal Caledonian Horticultural Society, is a well-known and highly esteemed horticulturist, who has been in the forefront of successful cultivators for the last thirty years. His many friends will be pleased to hear of this recognition of his services to horticulture. Beginning his gardening career at the age of fourteen, he served for a time in Abercairney Gardens, Crieff. From there he entered on a three years' term of apprenticeship in Blair Drummond Gardens, for which he paid the then common fee of £10. After serving for a time in other gardens, he found his way—no easy matter then—into the gardens of the Duke of Buccleuch at Dalkeith, then in the height of their fame, and under the charge of Mr. Wm. Thomson. At Dalkeith he served through the various departments for six years. At this time Mr. Thomson started his now famous establishment at Clovenfords. As many may remember, a feature of that establishment was to be Pine-apple growing for market. David Murray was one of five young men selected by Mr. Thomson to take charge of this department, for which extensive ranges of Pine-pits had just been erected. After three years at Clovenfords, he was chosen by Mr. Thomson to fill the post of head gardener to the then Marquis of Ailsa at Culzean Castle, a post he has held with much acceptance to his employers and credit and honour to himself for the last thirty years. Finding himself "head" at the age of twenty-four, he threw his whole heart into his work, and many improvements were carried out in the extensive and beautiful gardens under his charge. For many years Culzean has been famed for high-class gardening in all departments. In vegetable-growing and fruit-culture, both inside and out, Mr. Murray is perhaps best known; he is the raiser of the famous Onion Ailsa Craig, and no grower in Scotland and few in the South have yet been able to excel the huge bulbs of this Onion which he often exhibited. Frequenters of Edinburgh shows about twenty years ago may remember the many jokes which passed at the Onion staging-table. Other exhibitors would ask for the largest plates of the society to dish their twelve, while "Davie" would always ask for and receive a riddle, which was seldom found too large a receptacle to show off his great specimens. The famed Culzean Curled Kale is also a creation of his. In fruit-culture Mr. Murray has been most successful; his renovation of old orchards and the lifting of large Apple and Pear trees has been a great success. With indoor fruit his success has been equally satisfactory, and though not now so frequent an exhibitor at the autumn shows, the Culzean fruit has on many occasions taken leading honours at most of the large international shows. No finer example of high-class Grape-culture can be found in the country than what is to be seen, any season, in going through the vineries at Culzean—no light cropping, but heavy, full crops of finely shaped and finished bunches. A hearty welcome awaits the horticulturist who makes pilgrimage to this beautiful place on the Ayrshire coast, for amongst the many qualities of this successful gardener, not the least are his warm heart, his frank and open manner, and kind hospitality. May he be long spared to wear his honours is the wish of many friends, besides an *Old Culzean Boy.*

LIRIODENDRON TULIPIFERA.—If your correspondent Mr. W. A. Cook will apply to any dealer in foreign woods for a sample of American white-wood, he will find that the timber is, as its common name implies, of a white colour, very even and close-grained, compact, sound, and easily cut. A large proportion of the American woodware now so largely found in this country is of whitewood, and a good deal of the ebonised show-cases, as well as household furniture, is, or was, made of this wood, as it takes both the black stain and polish well, and when properly seasoned is not liable to warp. The wood, though generally white, as above described, is sometimes of a yellowish tint, with darker streaks. Position and soil probably affect the character of the wood, as in other trees. The large tree at Kew, which was taken down many years ago, showed this in particular. The lower part of the trunk of that tree was covered with large wens or knots, which upon cutting up showed no special figure, and lacked compactness or solidity, which of course made it useless for veneering. The probability is that the wood of the tree at Erlestoke Park gardens, growing so near water, shows a totally different character on drying to the imported wood. *John R. Jackson, Claremont, Lympstone, Devon.*

—— Mr. Cook writes to know, in a recent issue, if anyone has a larger tree than one at Erlestoke. I should say from recollection that the one at Sir Edmund Loder's beautiful place, Leonardslee, near Horsham, is taller, and is probably, on account of its tall, clean, straight trunk, the finest in England. This, however, is growing on rather poor forest soil at a considerable elevation, where it overtops all the native trees of the same age. Sir E. Loder will doubtless give particulars, as he was good enough to photograph the tree for me. The wood is good for making thin laths for greenhouse shading, and I should be very glad to purchase it for that purpose. *H. J. Elwes, Colesborne, Cheltenham.*

STRAWBERRY-GRAPES.—On July 22, at the Drill Hall, I exhibited a basket of Strawberry-Grapes, black in colour, with a fine bloom, and a perfume and flavour of Strawberries, hence their name. I first made acquaintance with this Grape in the markets of Florence, under the name of Uva Fravola. I thought it had an exquisite and novel flavour, and hoped some day to be able to grow it. Finding that the Chiswick Garden of the Royal Horticultural Society possessed it, I begged the Secretary for a plant, and two years ago two rooted cuttings were kindly sent to me by the superintendent. I kept the pots containing them in the open during the summer, and next winter I planted them in a warm-house—a span-roofed house directed north and south. In the spring they made fine growth, with canes 20 feet long, when they were stopped. I did not train them in the ordinary way under the glass roof, but on wire espaliers, on each side of the house. This spring they flowered abundantly, and set finely; they were not thinned, and they matured perfectly into pretty compact bunches, covered with a fine bloom, all the berries being of uniform size and spherical. It is astonishing that a Grape with such a fine flavour and scent has not found its way into general cultivation. The bunches are not large, and the berries are comparatively small, but both are large enough for any table. I told a young fruit-grower that the Gros Colman was an inferior Grape compared with this delightful Strawberry-Grape. He said, "But nobody would believe that!" And I think he was right, for it is the size of the Gros Colman that makes the demand for it, and not its flavour. We know that huge Pears are hired for dinner-parties, and which are never touched. If the Gros Colman were a Plum, probably no one would look at such a tasteless thing; but being a Grape, it is sought after! If the Strawberry-Grape were grown by some market-gardener, the probability is that it would become a favourite with the public, for its flavour is unique, and a dish of its bunches would look very pretty on a dinner-table. It is not subject to mildew, or to cracking; its canes are thin, and very long. Curiously enough, M. Salomon, of Thomery, wrote that it was so weak he could not propagate it. I found no such weakness. I am trying some of its Vines outside, and have several rooted cuttings, and even the tops of the green shoots strike readily in heat. I have some of the latter now, 2 feet high. It ought to make a pretty pot-plant. Apart from the value of this Grape as a table fruit, it may have a greater value for crossing purposes—say, with the Gros Colman. If this could be effected, we might possess a Grape of large size with the unique flavour of the Strawberry-Grape. *E. Bonavia, M.D., July 24.*

SWEET PEAS.—One of the finest sights in the seed-growing district of Essex is a field of 6 to 7 acres, belonging to Messrs. E. W. King & Co., seed growers, Coggeshall, on which they are growing for seed sixty of the choicest named varieties of Sweet Peas, and ten varieties of Cupids. This firm make a specialty of Sweet Peas, and have trial-rows of nearly 160 varieties. They were awarded a Silver Medal at the Sweet Pea show held at the Royal Aquarium, for a display of seventy-two choice varieties which were gathered from the fields as growing for seed and not for show purposes. They were awarded Silver Medals also in 1900 and 1901. *Coggeshall.*

CANADIAN ASH (F. SAMBUCIFOLIA).—Your note on this tree as being that used for oars in the British navy is, I think, based on a mistake. The Ash which Sargent says is used for oars is F. americana (the White Ash), which may or may not be of better quality in Canada than further south. Macoun says it is common in New Brunswick, Quebec, and Ontario, where it is a valuable and important tree. It grows well from seed in England, germinating in a few days, and I cannot understand why it is not generally planted. At Kew it grows faster than any other Ash. My seedlings were frozen badly last spring, but this often happens to the common Ash. I can send plants 2 feet high in autumn to anyone who wishes to try it, and who will send stamped addressed package to *H. J. Elwes, Colesborne, Cheltenham.*

FASCIATION IN LILIES.—When visiting the Technical School garden-plots at Litton Cheney the other day, my attention was directed to a group of White Lilies (Lilium candidum), growing in a garden opposite the village inn. One bulb had thrown up a very strong stem, and about 3 feet from the ground had spread out about 6 inches, 1 inch thick, and 10 inches high, on top of this 159 flowers of two-thirds the usual size, about

8 or 10 of the normal size. Speaking of it to a neighbour (the Revd. James Seagar), he at once came over and made some stereoscopic slides, two of which I send you. I do not think fasciation is usual in Lilies, at least I have never seen it, and do not suppose many of your readers have. *Horace Huntley.* [It is very common in our experience, especially in L. auratum. ED.]

COLD WEATHER IN KIRKCUDBRIGHT.—We have experienced some very low night temperatures during July. The lowest one was on the 25th inst., namely 36°. Further inland, and higher up, it must have been near to freezing point. The cold nights are retarding the growth of all tender plants; Dahlias, French Beans, &c., are standing still. *J. Jeffrey, The Gardens, St. Mary's Isle, Kirkcudbright.*

GILLIFLOWERS AND GARIOPHILATI.—I think Mr. Ellacombe is wrong in associating these names, for the latter was Geum urbanum in the middle ages. Thus, it occurs in *Alphita*, 1465, and in Liber pandectarum of Matthæus' *Sylvaticus*, 1480. The latter says: "Gariophilata, herba similis agrimonie, cuique radix odorem habit gariofilarum . . . gariophilatum est quedam confectio, sic vocata." In *Alphita*, we read "Gariophilata, anencia idem." Lastly, a figure of Dodonæus is that of Geum urbanum. *George Henslow.*

—— I need hardly say (see *Gard. Chron.*, p. 62) there is no evidence beyond the dictum of Blount that "Vini Gariophylati" was July-flower wine. At p. 29, "March" should have read "Marsh," and Cabbage-"stalk" "stock." *R. P. Brotherston.*

STRAWBERRY MONARCH, LEADER, ETC.—To compare, as Mr. Parslow does on p. 62, Leader and Fillbasket Strawberries, is to those not acquainted with the varieties rather misleading. Anyone with a fair-sized garden may with advantage grow the two; Leader, as its name implies, being first early, while Fillbasket is certainly late midseason or very late. On a selected position, it is now here in full bearing on July 28. Fillbasket, apart from its not distinct colour, is a good Strawberry, flavour sweet and pleasant; but when dished the white points of the fruit are, to say the least, a defect. If those who may have been unsuccessful with Leader will root some healthy runners in small pots, plant them out in ground of not too heavy texture, mulch immediately after with, by preference, some spent Mushroom-bed droppings, these keeping clear the usual weeds; lightly fork in spring, then when fruit is set give good watering of liquid-manure, in which have been thrown about 1 to 2 lbs. nitrate of soda per 100 gallons, followed by the usual mulch of straw-litter, I venture to predict he or they will have changed opinion about that variety, and consider their subscription to the *Gardeners' Chronicle* well invested this week, at any rate. Plant for annuals 10 to 12 inches each way; for the second year knock away every other row of plants. Being a producer of little foliage, these distances are ample; while under the same system of cultivation Royal Sovereign, for instance, requires fully a third more room. *R. G., Whitfield, Herefordshire.*

—— I grew both of these soon after they were offered to the public, and still retain Leader, but am of the same opinion as Mr. Parslow as to its flavour, it being too dead. No one doubts its cropping qualities, but I think the Strawberry has yet to be found that will beat Royal Sovereign for weight of crop. Monarch I soon discarded, as so many of the plants proved barren each year. Leader is a good forcing variety to succeed Royal Sovereign, and I shall grow it for this purpose, as I think the flavour is much better when grown under glass. Our soil here is fairly light and sandy, but of good depth, and speaking generally, Strawberries succeed well with us. *J. Mayne, Bicton Gardens, Devonshire.*

—— As far as my experience goes with the Strawberry Monarch, unlike any other Strawberry I know, the flower-stems, thick and short, are produced in such quantities, and stand so upright, that if there is not a great amount of strength in the plants to throw sufficient leaf over the blooms, the frost may cause nearly the whole of the blooms to go blind. I planted my Monarch Strawberry plants 6 inches apart in the row, and 2½ feet between the rows, and from two rows 35 yards long I gathered on July 8 five pecks of splendid Strawberries—the last dish to day (July 28). *P. Fry, Addington Park Gardens, West Malling, Kent.*

—— Monarch here is a fine setter and an abundant cropper (soil heavy), second rate in flavour; bad traveller, as it is too soft; good colour, large and juicy. Other sorts we have tried are Queen of Denmark, Empress of India, Gunton Park, which have been planted two years, but have given a very poor return. Sensation is an abundant cropper, but has no flavour whatever; fruits soft, of good size. Our best are Vicomtesse Héricart de Thury, Royal Sovereign, Sir Joseph Paxton, President, and Waterloo. *A. B. Wadds, Paddockhurst Gardens, Worth.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

JULY 22.—*Present*: Dr. M. T. Masters (in the Chair): Messrs. Hooper, Odell, Nicholson, Worsdell, Bowles: Drs. Müller and Cooke; Revs. W. Wilks and G. Henslow (Hon. Sec.).

Leucoium droppers.—Mr. H. H. BENTON BRADLEY, of Sydney, sent additional illustrations of bulbs of Leucoium, showing two bulbs, one above the other; also similar bulbs artificially separated, and both growing when planted.

Prairie Bean.—Mr. WILKS showed specimens of a Leguminous plant from Kansas, remarkable for flowering before the leaves appear. They were referred to Mr. Nicholson.

Paris with variable number of leaves.—Mr. ODELL showed several flowering stems with five leaves instead of four. The number is constant on the plant. The late Prof. J. S. Henslow wrote a paper on "The Varieties of Paris quadrifolia, considered with respect to the Ordinary Characteristics of Monocotyledonous Plants" (Loudon's *Mag. Nat. Hist.*, vol. v., p. 429, 1832).

Kleinia.—Mr. ODELL also showed specimens of this S. African plant, in illustration of its climbing habit.

Peperomia.—He also brought specimens of a minute species from Burmah.

Bulbs pierced by Couch Grass.—Miss WILLMOTT forwarded specimens. The process is described as done by a ferment secreted by the tip of the rhizome, by M. A. Prunet (*Sur la perforation des tubercules de pomme de terre: Rev. Gen. de Bot.*, avec illustrations).

Plum with foliaceous Calyx.—Mr. HOOPER showed some blossoms of a Victoria Plum-tree with small but distinctly leaf-like sepals.

Nectarine-Peach.—Dr. MASTERS received a fruit from Mr. Rivers, one-third of the skin being that of a Nectarine, and the rest that of a Peach. It came from a Peach-tree raised from the stone of a Nectarine many generations ago.

Sugar Pea.—Mr. ECKFORD sent examples of this Pea, remarkable for its semi-succulent, edible pod, known in France as Pois sans parchemin. It has produced three varieties, cultivated in France.

Poon-yet Resin.—Dr. COOKE read an account of this resinous-like substance prepared by bees in trees in Burmah. Their nests are entered by small passages lined with the resin, which is continued outside in the form of a trumpet. It is probably formed by a mixture of substances.

Potatos diseased.—Some small tubers were sent by Mr. ECKFORD, which Dr. COOKE undertook to examine.

RAYLEIGH AND DISTRICT HORTICULTURAL.

JULY 16.—The above-mentioned Society held its second annual show under most favourable conditions as regards the weather, and was a success and improvement upon its predecessor in every way, as might have been expected.

In the class for a group of miscellaneous plants arranged for effect, there were four entries. Mr. A. Mathews, gr. to A. C. CORK, Esq., Barringtons, Rayleigh, was placed first for a group which was undoubtedly far superior in composition and tasteful arrangement to the two placed before it.

Stove and greenhouse plants were creditably shown by Messrs. J. POLLEY, A. MATHEWS, and E. JAMES, these growers being the most successful exhibitors among gentlemen's gardeners, Mr. POLLEY taking thirteen 1sts, three 2nds, and one 3rd; Mr. MATHEWS five 1sts, six 2nds, and three 3rds; and Mr. JAMES two 1sts, two 2nds, and two 3rds; Mr. Denyer, gr. to GEORGE VERNELL, Esq., The Elms, Rayleigh, securing nine prizes, mostly 2nds and 3rds.

LADIES' CLASSES.

The class for dinner table decorations was a strong one, Mrs. ARDLEY, Elsie Villa, Rayleigh, securing 1st place for a light and very effective arrangement, consisting of light and pink-coloured single Poppies, and with grasses judiciously intermixed, Sweet Peas and grasses being used in the small glasses at the end of the table.

OPEN CLASSES.

Messrs. PAUL & SON, Cheshunt, Herts, were the only exhibitors in the class for seventy-two Roses, staging a grand lot of blooms of fine depth and substance, fresh and even, among which the following varieties were conspicuous:—Marchioness of Londonderry, Pride of Waltham, Paul Neyron, Her Majesty, Duchess of Bedford, Fisher Holmes, Duc d'Orléans, Charles Darwin, Cheshunt Scarlet, Comtesse de Ludre, and Ulrich Brunner (still one of the best all-round exhibition Roses).

Among the non-competitive exhibits, Mr. HOBMAN'S exhibit from the Hull Bridge Potteries and Brickfields, Hockley, consisting of plain and artistic garden pottery in the way of flower-pots, Seakale and Rhubarb (forcing) pots, vases, &c., commanded a good deal of attention from exhibitors and visitors alike; the material, make, and fine finish of the several articles included in the exhibit being everything that could be desired.

FINCHLEY HORTICULTURAL.

JULY 17.—The forty-third exhibition was held in the grounds of W. P. Jones, Esq., Manor House, Finchley. The classes generally were well filled, and competition keen; Roses were exceptionally good. From an educational point of view there was one great omission, very few, either of plants, fruits, cut flowers, or vegetables, had any names attached to them.

Two classes were provided for groups of plants, one to be composed of flowering plants, and the other of flowering and foliage. For the latter, the 1st prize went to Mr. G. Neal, gr. to A. MACMILLAN, Esq., Avenue House, Finchley, for an arrangement in which well bloomed Oleanders were effective.

With a group of flowering plants, Mr. Sandford, gr. to G. WRIGHT INGLE, Esq., Woodhouse, North Finchley, secured the 1st prize, his best plants being Begonias and Gloxinias, freely bloomed.

Mr. Page, gr. to G. W. KILNER, Esq., Ravenscroft, was 1st with six stove and greenhouse plants.

In the large tent Fuchsias were a special feature, and made a very good show of themselves. For six plants, Mr. J. Souch, gr. to BOVERTON REDWOOD, Esq., Church End, was 1st, with pyramidal plants well flowered.

Mr. NEAL was 1st with six Caladiums.

A class for six plants of Coleus brought a strong competition, some well coloured varieties being staged. Mr. COOLEDGE was 1st, with large bush-shaped plants.

Among the Fern classes, Mr. C. H. Martin, gr. to Mrs. LANGTON, Raymead, Hendon, was 1st, for four good plants.

Tuberous Begonias and Petunias were well shown by several exhibitors. For the former, Mr. SANDFORD was 1st.

Roses and Sweet Peas were prominent among the cut flowers. For twenty-four Roses in twelve varieties, including Teas, Miss B. LANGTON, Raymead, Hendon, was easily 1st, with a very good collection.

For a collection of six varieties of fruit, 1st, Mr. NEAL.

The exhibits of vegetables were not numerous, the best competition being in the Pea classes.

Messrs. CUTBUSH & SON, Highgate, arranged a nice group of hardy cut flowers; Messrs. B. S. WILLIAMS & SON, showed Begonias, and a group of miscellaneous plants; and Messrs. HARKNESS & SONS, Bedale, sent five boxes of Roses.

TIBSHELF FLOWER SHOW.

JULY 22.—Tibshelf, the colliery town lying between Nottingham and Sheffield, was again unfortunate on the above date, when the twenty-seventh exhibition under the auspices of the Tibshelf Floral, Horticultural, and Rose Society, was held.

Though the attendance was affected by the bad weather in some respects, the show was perhaps as large and satisfactory as any of the previous exhibitions, which have made for the Society a reputation almost all over the Midland Counties. As usual, three marquees were occupied with plants and exhibits, and

entries in all departments were quite up to the average, and in the groups and classes for Roses there was an increased entry. The Roses were particularly fine, hardly any of the blooms being weathered, and in themselves formed a gorgeous display.

The chief interest centred round the third class in which gentlemen's gardeners, amateurs, and nursery market gardeners, open to all England, competed. Prizes of £15 downwards were offered for groups of plants arranged for effect to cover 200 feet. Mr. J. Ward, gr. to Mr. T. H. Oakes, J.P., of Riddings House, Alfreton, again carried off premier honours; Mr. T. J. Nelson, gr. to Mrs. Barnes, Ashgate Lodge, Chesterfield, was 2nd.

Amongst the cut flowers, Mr. T. J. Nelson excelled in Gloxinias and Sweet Peas, his cultivation in the latter being most prolific.

It should be mentioned that a very pretty group of plants was staged, not for competition, by Sir Chas. Seeley.

Roses.

Nearly the whole of the staging round the middle marquee was occupied with the Roses. The majority of the blooms were exquisite, and upon no occasion have they been excelled at Tibshelf. The National Rose Society again offered Gold and Silver Medals for competition, both being secured by Messrs. Harkness & Sons, of Hitchin; Messrs. Harkness also secured both of the Royal Horticultural Society's prize Banksian Medals. Throughout, the noted Hitchin firm easily took up the first place, and the merest tyro need have had no difficulty in fixing the position that they should occupy in the list of awards. Their boxes did not contain a bad bloom, and few that were even the most slightly touched, either by the effects of weather or time.

The cut flower classes in most cases were well represented. For a collection of Roses, arranged for effect, Mr. Hugh Dickson, Belfast, was 1st; this group was remarkable for the brightness of the colour in the flowers and neatness of arrangement. Messrs D. & W. Croll, Dundee, 2nd.

For thirty-six Roses, twelve distinct, Messrs. D. & W. Croll were 1st. For forty-eight distinct varieties, 1st, Messrs. Harkness & Sons, Hitchin. For twenty-four distinct varieties, 1st, Mr. Hugh Dickson.

In the classes for twenty-four and eighteen bunches of hardy herbaceous flowers, Messrs. Harkness & Sons were 1st.

In the fruit classes the competition was keen.

For eight dishes, distinct kinds, Mr. Nicholls, gr. to Lady Beaumont, Carlton Towers, was 1st; Lord Napier Nectarines and Madresfield Grapes in this collection being of merit. Mr. J. C. McPherson, gr. to Lord Londesborough, 2nd.

For a collection of four dishes (Pines excluded), Mr. W. Fulford, gr. to R. Bardon, Esq., 1st.

In the Grape classes, the 1st prizes for four bunches in two varieties, two bunches of Muscats, was won by Mr W. Mark, gr. to Miss Maschamp.

Vegetable classes were not numerously represented, and were below the usual quality of exhibits at this show.

Amongst non-competitive exhibits was one from Mr. James Douglas of Carnations; Messrs. Dicksons, Ltd., Chester, sent a group of Roses, Carnations, and herbaceous flowers; Messrs. J. Forbes & Son, a group of hardy flowers; Messrs. Mack & Miln, Roses; Mr. W. Fell, Hexham, a group of miscellaneous nursery stock. *H. J. C.*

PANSY SHOW IN GLASGOW.

July 23.—The interior of the Trades Hall was a blaze of colour on this date, the occasion being the annual show of the Glasgow and West of Scotland Pansy Society.

A feature of the exhibition was the display by professional nurserymen of stands of various types of flowers and plants. These, in some cases, were awarded prizes. The trade exhibit, for instance, of Messrs. Campbell & Sons, of High Blantyre, carried off premier honours with a very meritorious collection, in which Carnations formed a conspicuous feature.

Messrs. Dobbie & Co., of Rothesay, had a capital display of Pansies and Violas, the best Pansy in the hall being included in their group.

A leading place was occupied by Messrs. Hugh Dickson & Sons, of Belfast, their show of about 100 Rose blooms being of very superior quality.

The most successful individual competitor was Mr. John Smellie, of Busby. In the class for nurserymen he was awarded the Champion Gold Medal for blooms of fancy Pansies, and he also secured the 1st place for spray Violas. The President's prize went to the same gentleman for handsome blooms of very fine size and form.

Mr. Robert Dunsmore, of Avon Bridge, stood well up in the honours list. In the gardeners' and amateurs' class he was awarded no fewer than three distinct prizes for Pansies, the Gold Medal going to him for a dozen exquisite blooms. Mr. John Sweeney, of East Kilbride, was a close 2nd in this last-named class.

Mr. Dunsmore also carried off the Silver Cup for Pansy blooms of distinct varieties.

For Violas in sprays in the open class, Mr. John Johnston, of Law, was awarded the Gold Medal, his blooms being highly meritorious; and a similar honour fell to Messrs. H. Dickson & Sons, for twenty-four Roses.

There was keen competition in a class for Viola blooms shown singly, like Pansies, on trays, but the Viola does not look happy in this way. *From Daily Record.*

DURHAM, NORTHUMBERLAND, and NEWCASTLE-UPON-TYNE BOTANICAL and HORTICULTURAL.

July 23, 24, 25.—The summer show took place at Newcastle on the above days. Owing to the lateness of the season, many of the classes were sparingly represented, but on the whole a satisfactory exhibition was made. The most remarkable subjects in the show were the trained specimen plants; and what is still more remarkable, the whole of the specimen flowering plants are grown by the "pitmen"—truly a surprise for the judges and visitors from the South.

In the class for six flowering plants, Mr. J. Harris, Cramlington, was 1st, showing finely-grown specimens of Phœnocoma prolifera Barnesii, Stephanotis grandiflora, Rondeletia speciosa major, Clerodendron Balfouri, C. fallax, and Allamanda grandiflora. Messrs. J. & J. Ellison 2nd. In the class for four plants in bloom, the above awards were reversed.

In the large groups, arranged for effect, Mr. F. Edmondson, Newcastle, was first with a neatly arranged group; H. H. Hiller, Green Park, Darlington, 2nd.

THE HORTICULTURAL CLUB.

July 24.—The annual excursion of the club took place on Thursday, when about forty members and their lady friends spent a delightful day on the Upper Thames. Among those present were Messrs. H. Veitch, Kay, Assbee, Monro, Sweet, Watkins, Thomas, Barr, Shoults, Goldring, May and Druery, most of whom were accompanied by their wives or lady relatives. Meeting at Paddington at 11.15, the party arrived at Cookham in time for an early lunch at the Crown Hotel, prior to boarding a convenient steam-launch, which took them down the river for some distance, then turning and ascending it as far as Temple Mills, beyond Marlow. On this occasion the Excursion Committee abandoned the usual programme of a series of visits to celebrated gardens, owing partly to the inevitable fatigue attendant thereupon, and partly to a desire to vary it. Experience however demonstrated that in this case, little or nothing was lost thereby, in horticultural instruction.

HANDSWORTH AND DISTRICT CHRYSANTHEMUM.

July 25, 26.—This was the eighteenth annual exhibition of a Society which recalls the traditions of a highly successful Society which flourished at Handsworth sixty years ago, when it was a country suburb. So successful was it in those days, that three and four exhibitions were annually held, and not only were florist's flowers exhibited by the leading growers, but collections of new and rare plants also. Birmingham was then a much more important centre of nursery operations than it is now; but there are indications that there is a growing return of that enthusiasm for the cultivation of Auriculas, Carnations, Picotees, &c., which prevailed in the early 'fifties, when Henry Pope, Samuel Brown, Charles J. Perry, and others, took such prominent positions among florists. The Crompton Arms, formerly kept by Samuel Brown, and now by his son, A. R. Brown, who is well known at our London Auricula and Carnation shows, is a rallying place for florists at Handsworth. There is a delightful garden and a display of flowers throughout the summer, and on the walls of the principal rooms of the inn can be seen coloured illustrations of old-time flowers, with portraits of dead-and-gone worthies.

The exhibition was held in the Victoria Park, an open and breezy spot in the midst of a thickly populated industrial centre. Some five very large tents were required to accommodate the exhibits; in fact, the Handsworth Flower Show bids fair to rival that of its sister Staffordshire town—Hanley.

In one of them could be seen the fine groups arranged for effect, and as Mr. James Cypher was competing with one of his elaborate arrangements, in which glowing foliage plants and choice flowers play such an important part, it is not to be wondered at that the judges awarded him the 1st prize, £15 and Councillor Forsyth's handsome Challenge Cup. Mr. G. Hancox, Castle Bromwich, was 2nd. Here, too, were the dozen very fine specimen plants shown by Mr. Cypher in class 2, which received the 1st prize of £15.

In the next tent a good portion of the sides was occupied with miscellaneous trade exhibits; and here were the collections of fruit competing in Class 3. As the collections were unlimited, Mr. J. H. Goodacre sent from Elvaston twenty-seven dishes, all of excellent quality and varied. Good enough for a Coronation feast dessert, it comprised, of Grapes, Muscat Hamburgh, very fine; Madresfield Court, Gros Maroc, Black Hamburgh, and Muscat of Alexandria; Peaches and Nectarines of fine character in variety; Figs, Melons, Plums, Strawberries, Cherries, Apples, Pears, &c. Mr. J. Read, The Gardens, Brethy Park came 2nd with a smaller but very creditable collection. Mr. Read came in 1st with six bunches of Grapes. He had two of Mill Hill Hamburgh, and one each of Madresfield Court, Mrs. Pearson, Muscat of Alexandria and Buckland Sweetwater, small but generally well-ripened bunches. Mr. Goodacre came 2nd with three fine Madresfield Court and three of Muscat of Alexandria, sadly deficient in colour.

Down the centre of the tent was a line of pretty dinner tables, 8 feet by 4 feet. The 1st prize was awarded to Mr. C. Thomas, gr. to C. A. Palmer, Esq., for a light and graceful arrangement of delicate rose and blush Sweet Peas, done in perfect taste. Mr. S. Rose came 2nd.

Roses were a pleasing feature, and an excellent exhibit of twenty-four blooms gained the 1st prize for Messrs. Perkins & Son, Coventry.

With twelve Teas, Mr. George Prince, Oxford, came 1st.

Carnations and Picotees were in good character though sparingly shown, Mr. R. C. Cartwright, Selley Oak, was 1st with twelve yellow grounds.

Messrs. W. Pemberton and Son, took the 1st prize with twelve blooms of white ground Carnations and Picotees. Violas were shown in bunches of twelve.

The centre of the third tent was filled with specimen plants, contributed by gentlemen's gardeners and amateurs within division.

Two other spacious tents were occupied by contributions from cottagers.

Interesting trade contributions were staged by Messrs. Hewitt & Co., Solihull, who were awarded the Gold Medal of the Society; H. Deverell, Banbury, Pattison and Co., Simpson and Co., Jarman and Co. Groves and Son, E. Webb and Sons, and others.

TRADE NOTICE.

Mr. A. Hope, late shopman to Messrs Geo. Cooling & Sons, Bath, has been appointed a traveller for Messrs. Dickson, Brown, & Tait, Corporation Street, Manchester. He is a son of Mr. Hope, Seed manager to Messrs. Robert Veitch & Sons, Exeter.

ENQUIRIES.

Geological Conditions of S. Africa.—Would any reader inform "A. D. B." of a book dealing with the geological conditions of South Africa?

If flints are dug in winter and exposed to the sun during the following summer, are they superior for making roads than they would have been if used soon after having been dug? *A. A.*

Rose Madame Desprey.—A correspondent (Mrs. A.) would like to know where she may obtain this Bourbon variety.

ANSWERS TO CORRESPONDENTS.

*** Editor and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the Publisher; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the Editor. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

Books: *E. B.* There is none that will specially suit your purpose, but the subjects you name are all dealt with in a general work such as Thomson's *Gardeners' Assistant*, a new edition of which is now issuing from the press. There are six volumes, price 8s. each. The publishers are the Gresham Publishing Co., 34, Southampton Street, Strand.—*Mrs. G. P. The Carnation Manual*, issued by the National Carnation and Picotee Society: Secretary Mr. T. E. Henwood,

Auricula Villa, Hamilton Road, Reading. As you wish particularly to have details of the cultivation of the Souvenir de la Malmaison section, you cannot do better than read the article in the *Gardeners' Chronicle*, July 2, 1898, p. 3, which describes the practice of an exceedingly successful cultivator.—*A. E.* The new edition of Thomson's *Gardeners' Assistant* would be useful to you, and you might visit some of the London parks during this month or September.

Clubbing in Savoys, Cauliflowers, &c. *E. N.* Read the paragraph on "Clubbing in Cabbage," which appeared on p. 67 of our last issue. Without seeing specimens, we are unable to say which of the causes of "clubbing" there mentioned applies to your particular case.

Collection of Six Kinds of Vegetables: *T. W.* Yes, you are entitled to include Cucumbers in such an exhibit. In the Royal Horticultural Society's *Rules for Judging*, perfect Cucumbers are recommended six points, seven being the maximum number recommended for any vegetable.

Dahlia: *Seaside.* The variety Grand Duc Alexis, introduced from France in 1894, is regarded by the National Dahlia Society as a decorative Dahlia. It would not, therefore, be suitable for exhibition in a class exclusively for show or fancy varieties.

Echinocactus.—We omitted to say in a previous issue that the illustration (fig. 13) of sundry Echinocacti was taken from a photograph kindly furnished by Mr. de Laet, of Contich, near Antwerp, who makes a specialty of these plants.

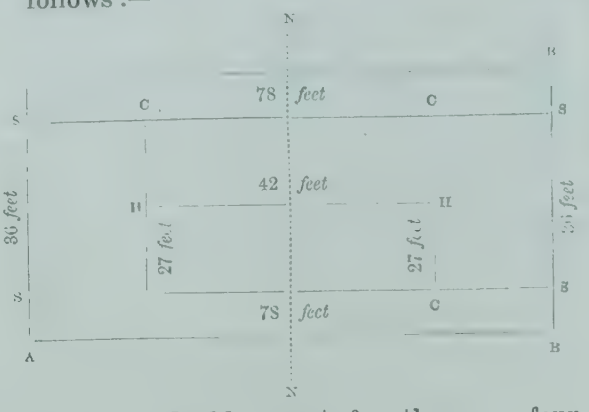
Figs not Succeeding: *C. F. H.* As your Fig-trees were unsatisfactory in pots, you planted them out in "a well-manured border." Is the border thoroughly well drained? This is the first requirement for Figs. The border should be rather less than 2 feet deep, and above the drainage material, and should be made of fibrous loam, mixed with a considerable proportion of old mortar rubble. It is well to limit the amount of rooting-space, or the trees are apt to grow too strongly to be fruitful. For the same reason, it is not wise to incorporate a large amount of manure in the compost forming the border, as sufficient nourishment and stimulant can be afforded afterwards by means of liquid-manures and top-dressings, these latter being very beneficial, because they encourage the multiplication of fibrous roots at the surface where food can be easily afforded them. The amount of manure afforded the roots from the surface may be proportionate each season with the crop of fruits the trees produce. During the early part of the summer, the chief requirements of the Fig under glass are moisture, warmth, and abundance of fresh air, leaving a little ventilation on all night at the top of the house; also frequent root waterings, using liquid-manure if the trees carry good crops of fruits. Abundant syringings with clear water are essential, until such time as the fruits commence to ripen, when it is necessary that the atmosphere should be a little drier than formerly to prevent the fruits cracking. Extra strong growths should be stopped, but if it is necessary to remove weak ones because of overcrowding, take them away entirely. As your fruits fall from the trees when they are half grown, there may be a fungoid disease upon them. If you will send a few specimens they shall be examined.

Fruit Returns: *A. E. S., J. L., County Down, Lewis B., and several others.* Received too late for inclusion in table.

Lapageria: *Subscriber.* The leaves appear to have been scorched. Without knowing all the circumstances, we cannot tell the reason why the plant does not grow properly. We find neither insect nor fungus. Do you shade the plant from bright sunshine? If not, you should do so.

Lawn Mower: *W. K.* We cannot recommend any particular firm of manufacturers, but would direct your attention to illustrated articles upon this subject which appeared in the *Gardeners' Chronicle*, May 17, 24, 31, and June 7, in which the value and uses of the portions of a good mowing-machine are fully described.

Lawn Tennis Court: *G. H. B.* The dimensions for a single and double tennis court are as follows:—



A B, B A, double court for three or four players; S S, S S, single court for two players. A A and B B are the base lines; A B, A B, and S S, S S, side lines; C C and C C, service lines; H H, half court line; N N, net. A court for the single game is 27 feet wide, and 78 feet long; and for the double game, 78 feet long, and 36 feet wide. The posts for supporting the net should be placed 3 feet beyond the sides. The service lines run parallel to the net, and are 21 feet distant from the same.

Miscellaneous Plants affected by Mildew: *S. S. D.* The blackened foliage of the various plants, is due to aphides and inclement weather. There is, however, a fungus on the Vine leaves, called Cercospora viticola. All leaves attacked by the pest should be collected and burned.

Mummy Pea: *H. C.* This story has been long exploded. What is generally grown is a fasciated variety of the common Pea, sometimes called the Crown Pea.—*Lewis.* A fasciated variety of the common Pea, sometimes called the Crown Pea or the Mummy Pea, because it has nothing to do with mummies!

Names of Fruits: *J. McC.* The Peach was quite decayed, the Nectarines were also damaged, and no leaves were sent; they appear to be as follows:—1, Early Newington; 2, Balgowan.—*J. W. M.* The Strawberry is Helen Gloede, one of the parents of Latest-of-All.

Names of Plants; *T. R., Wantall.* A double-flowered Clarkia elegans.—*Anerley, S.E.* 1, Spiræa Douglasii; 2, Rhus Cotinus (Wig Plant); 3, Spiræa Bumalda.—*Woodside.* 1, Clarkia elegans, double var.; 2, Gaura Lindheimeri.—*N. B., Sheffield.* 1, Maranta albo-lineata; 2, M. picta; 3, Niphobolus lingua; 4, Selaginella Wildenovii; 5, Pteris argyræa; 6, Selaginella cæsia; 7, Adiantum hispidulum; 8, Gymnogramma tartarea (Silver Fern); 9, G. chrysophylla (Gold Fern); 10, Pteris serrulata; 11, Sedum Sieboldi; 12, Adiantum formosum; 13, Pteris serrulata; 14, P. s. cristata; 15, Phalaris Arundinacea variegata (Gardener's Garter); 16, Spiræa Ulmaria; 17, Pteris cretica albo-lineata; 18, Lomaria gibba; 19, Blechnum corcovadense; 20, Pteris cretica.—*H. R.* 1, Deutzia scabra; 2, Liriodendron Tulipifera (Tulip-tree, North America); 3, Rhus Cotinus (Wig Plant); 4, the cut-leaved Lime, Tilia sp.; 5, Berberis vulgaris.—*K. W. A.* 1, Onychium japonicum; 2, Pteris cretica, crested var.; 3, Asplenium bulbiferum; 4, Polypodium Billardieri; 5, Pteris hastata; 6, Nephrodium molle.—*J. G.* Escallonia macrantha and Veronica Andersoni var.—*J. R.* Chlorophytum orchidioides; Roses 1 and 2, varieties of R. multiflora; 3, Rosa Brunonis.—*C. H. P.* Escallonia rubra.—*W. H. C.* Ononis spinosa, Rest-harrow, generally indicative of poor land.—*W. G.* 1, perhaps Solidago virga aurea; 2, Malva moschata alba; 3, Veronica spicata; 4, a species of Rudbeckia; 5, Hypericum perforatum.—*R. H. W.* 1, Ceanothus azureus; 2, Spiræa, wretched scrap; 3, Spiræa; 4, S. Douglasii; 5, S. callosa; 6, S. Thunbergiana.—*J. P.* Brassia caudata, Mormodes pardinum unicolor, and Pellionia pulchra.—*Constant Subscriber.* Epidendrum cochleatum.—*Hooker.* 1, Hordeum jubatum; 2, Lagurus ovatus; 3, Eragrostis elegans; 4, Zephyranthes carinata.—*W. B.* 1, not recognised; 2, Asphodelus ramosus (white flower); 3, Clematis flammula; 4, Epimedium pinnatum; 5, Cimicifuga racemosa.—*W. H. W.* 2, Pteris arguta; 3, Pteris tremula; these are easily confused from unfertile fronds such as those sent, but there is that strong odour from the one which we note on your calling attention to it. The Adiantum is one of the garden forms raised from A. cuneatum, said to be a hybrid of it; it varies in the size of the pinnæ, and is called A. cuneatum elegans, or A. Waltoni when large, as in your specimen.

Nectarines: *T. B. D.* The leaves of the Nectarine appear to be affected with shot-hole fungus (Cercospora circumscissa), so named from the shot-like holes it makes in the foliage. If many of the leaves are badly affected in the same way, it would be well to spray them next season with ammoniacal solution of copper sulphate just when the leaves are expanding, repeating the operation at intervals. There is nothing to show why the fruit has cracked except that from some cause the flesh of the fruit has swelled faster than the skin has expanded. This occurs usually when the trees have suffered a check, followed by high stimulation and abundant root-waterings. That all varieties do not show the same impatience is not surprising.

Notice to Leave: *Wells.* Under the circumstances, we think that if you required to leave your situation in a week only, for the purpose of taking another one, the matter was one for mutual arrangement, and the employer would not be expected to stand in the way of your advancement. Had you not been living in a house upon the premises, a week's notice would have met the case perfectly.

Potato-tubers: *Ed. W. and R. L.* The spotting or mottling of the interior of the tubers is due to an undeveloped form of the Potato-disease (Phytophora infestans), an illustration and detailed description of which may be seen on reference to *Gardeners' Chronicle*, December 20, 1884, p. 788. Destroy the attacked tubers by fire. If you feed pigs or other animals with them, the manure from those animals will disseminate the pest.

Salpiglossis attacked by Fungus: *R. W. R.* The injury is caused by Puccinia Solani, a parasitic fungus. Spray with permanganate of potash.

Seedling Violets: *G. G.* At this season it is difficult to pronounce an opinion. The flowers are fragrant and brightly coloured.

Vines: *A. B.* No insect, no fungus; probably some detail in the cultivation has been neglected, or improperly carried out. Without knowing all the circumstances we cannot say more. The leaves are exceedingly thin, as if unduly forced. Admit plenty of fresh air, and take care the Vines are not subjected to over stimulation.

Communications Received.—L. Gentil, Congo.—W. H.—J. S.—H. W. (with thanks).—H. C.—S. M.—W. Whitlock (we regret we have not space).—A. W. W.—H. C.—T. H. S.—P. M. T.—F. T. M.—W. G. L.—E. H.—W. C. W.—W. M. W.—A. H.—T. A. C. C.—R. W. H.—R. D.—MacR & F.—F. L. T.—R. L. G.—J. J. S. A.—R. P. B.—O. T.—W. S.—W. M.—H. M.—W. A. C.—C. T. D.—A. & N.—E. F.—J. R.—F. T.—J. Y.—T. C.—S.—Harvey W.—H. T.—M. S., Coventry.—"Donne"—Pteris.—W. B. H.—Bishop's Stortford Hort. Society.

(*For Markets and Weather, see p. viii.*)

THE

Gardeners' Chronicle

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Vase to be offered for competition at Shrewsbury . 95

THE FLOWERS AT HOME.

THE man who would draw deductions respecting the Celestial Empire from the sight of a pig-tail in Regent Street, would not improperly be called foolhardy and rash. The vastness of China, the vigour and intelligence of her sons, the complexity of her language and organisations, the peculiarity of her institutions, her pride, love of home, and other qualities, could never thus be accurately gauged. It is equally impossible to form true ideas of the wealth, complexity, variety, and beauty of the plant-world by studying mummies in the herbarium, or isolated plants in field and hedgerow. He who would know China—the Flowery Empire—must go there; and he who would have his mind properly impressed with the flowery realm must go to the native haunts of the plants themselves. What a pleasure it is to come across a rare plant for the first time! The books all tell you that it is local, met with only here and there, except in certain specified stations, where it is perfectly at home. What botanist does not remember the boyish glee with which he gazed for the first time on a plant which was regarded as rare in other localities, but which here is the master plant, and flourishes with all the vigour of a youth in his native air?

It is easy to conceive the emotion to which Linnæus gave expression when he first came in view of a bed of Gorse in its golden dress. In the present paper I shall recall some of my own experiences as a botanist, extending over two decades. My enthusiasm has more than once brought me to grief, but all that I have suffered in the way of an injured wardrobe, a painful illness, or a period of suffering of another nature, has been as nothing when set against the joys I have experienced in communion with Nature face to face and heart to heart.

I well remember many years ago, a walk I was taking through east Sussex. I wended my way across some fields on the northern outskirts of the district where the memorable Battle of Hastings was fought, and for the first time in my life came across a couple of specimens of one of the rarest of Sussex plants (Bartsia viscosa), the sticky yellow Bartsia. My Flora told me it was only found in the neighbourhood of Bexhill, so far as Sussex was concerned, but here it was, at least a dozen miles to the north. Those two plants were practically all I ever saw for a dozen years. I went, however, one summer to north Devon, and spent a day botanising on a classic hunting-ground opposite Westward Ho! Almost the first plant to meet my gaze was my whilom friend of Mountfield, the sticky Bartsia. Here it was in its thousands. What an array! Every botanist in England might come and fill his vasculum, and yet leave plenty behind to continue the race. It was one of those sights which are never forgotten.

Another of my treats relates to the true Marsh-Mallow. There is a common Mallow which people often mistake for the rarer plant. There are whole tracts of country up and down our Island where the Marsh-Mallow is never seen. In other places it is met with in single plants or little patches here and there. But let anyone who wishes to see the Marsh-Mallow "at home" and in its glory, take a ramble across the fields from Winchelsea to Rye. I once took a photograph here looking up one of the dykes. The plants were a perfect forest of vigorous stems, crowded with ten thousand blooms of the most delicate hue, and the most perfect structure. Could a workman with a scythe set to work to cut down all the plants it would take him several days, and the dried herbage would make a rick of enormous dimensions. It is worth going many a mile to witness such a sight as that.

Few flowers can surpass the Water-Violet for modest beauty, yet many a botanist has never seen this flower at home. It delights in marshy places, and nowhere appears in greater perfection than in the dykes of the famous Pevensey Marsh. Its popular name is apt to be misleading, and one must not look for a violet at all. The Hottonia, as botanists call it, is nearly related to the Primrose, but its habit is totally different from that of our popular symbol of Toryism. It rises straight from the water, and throws out a series of floral whorls which decrease in diameter upwards like the branches of a Pine-tree. The colour is a delicate mauve or violet, whence its name.

I remember years ago taking an excursion to that paradise of the north country botanist, Newton Reigny Moss. The profusion of flowers bewildered me; at least one half were utterly new to me in a living form. I had never been to an "at home" with them before. Who shall tell of the glories of the mealy Primroses and the magnificent Globe-flower, the great Spearwort, and the Marsh Valerian, the fly-catching Butterworts, Droseras, and Bladderworts? How can I describe the profusion of rare Carices, one of which was new to Cumberland, the Sedges, Cladium, and other wonderful plants? But what is this? Surely it must be the Water-Violet. No! I never saw it like that before. The blossoms have a similar tint in the distance, but their shape, and the general appearance of the spike is different! The plant grew in thousands. It was evidently quite at home, but all the finest spikes were right away in the bog, under 1 or 2 feet of water, and could only be reached by wading up to the knees with shoes and stockings off, and trousers rolled up. But I must secure the prize at any cost. The flowers are reached, and as the day is hot the water is refreshing. That adventure had to be paid for, heavily. In about three days I felt a pain in my hip; it developed into sciatica. For weeks I could only move with agony; and for three years I never lost the feeling in the little toe! But I had got my plant, and it was the beautiful Bog-bean. Oh, what a glorious flower it is!

Spite of my mischance, I often visited the bog after that, and nearly always some noteworthy incident impressed the visit on my mind. Thus on one occasion, after having filled my vasculum to overflowing, I discovered on the other side of the dyke a plant which I did not possess. It must be reached at all costs. As I walked along the side of the wide ditch seeking a place where I might cross, I found a narrow plank spanning the water. It was thin and uncertain, but such was my eagerness to obtain the flower, that I took the risk and essayed to pass over. When I reached the middle the plank snapped, and I was plunged helplessly into 2 feet of dirty water, and as many of fœtid mire. For a moment I was panic-stricken, and nearly lost my head. My overcrowded vasculum was emptied of its precious contents by the fall, and I was in imminent peril. I managed at last to reach the bank, picked up my box with such specimens as were available, and dashed off to a neighbouring farmhouse. Here I was fortunate enough to secure assistance, and having made sundry temporary exchanges, ran to Penrith, caught the train for Carlisle, and effected another evolution without the contretemps becoming known. For a week I was in suspense, not knowing what consequences might follow, but at last I had the satisfaction of knowing that I had not to pay further for my enthusiasm.

Who that has seen the Hottonia or the Bog-bean in its native haunts will wonder at my temerity? Another plant which I have seen at home is the Grass of Parnassus. This gem of the English flora is almost unknown in the South, and it was not till I went to reside in Yorkshire and Cumberland that I was able to realise its beauty, or the ingenuity with which it secures the visits of insects and the transportation of its pollen. It must be observed again and again in the bogs and moorlands of the North before all its charm is realised.

The foregoing are but samples—mere "tasters," as a Sussex connoisseur in cheese would say; but I think they suffice to illustrate my point. The great fact about all these plants is, that however spindly, weak, and uninviting their appearance may be when found in unfamiliar ways, they are remarkable for their vigour and beauty when seen at home. It is only by studying plants in this way that accurate conclusions can be drawn concerning the problems of life, and only thus can the student of Nature fully realise the pleasure and profit to be derived from his pursuits. *Hilderic Friend.*

NEW OR NOTEWORTHY PLANTS.

HYBRID YUCCAS.

In my garden there are now about 200 very fine new hybrid Yuccas of more than common interest; and I hope the readers of the *Gardeners' Chronicle* will know more about them in time. Some of these interesting hybrids are plants of decorative value, and some of them are of enormous size. They are hybrids of the following species:—

Y. macrocarpa × filamentosa
Y. ,, × gloriosa
Y. ,, × ,, glauca pendula
Y. filamentosa × gloriosa
Y. ,, × ,, pendula
Y. ,, × Treculeana
Y. ,, × rupestris
Y. gloriosa × filamentosa
Y. aloefolia × Treculeana
Y. ,, × filamentosa
Y. ,, × gloriosa
Y. ,, × ,, pendula
Y. rupestris × filamentosa
Y. ,, × gloriosa
Y. Treculeana × filamentosa
Y. ,, × gloriosa
Y. ,, × ,, pendula
Y. macrocarpa × Treculeana
Y. filamentosa × macrocarpa
Y. ,, × imperialis

The last is one of my finest hybrids. The filamentosa with all its fine varieties has proved the best female plant, and can be fertilised by the pollen of any species. The best cross was with Y. filamentosa major, but with flaccida it was also very good. Only a very small number of these fine hybrids have flowered with me; still, it is only five years ago since I took this handsome genus in hand. I began with one of the varieties which at the time was in full splendour, and which I have named after the Consul-General of Germany at Naples, von Rekowski.

Yucca Rekowskiana ×.—Stem short, thick, with not many suckers; leaves thick, lorate, persistent, large, ensiform, a little recurved, undulate, not very prickly, filamentous, dark green, and forming a very decorative subject; leaf-stalks purple and large, prickly; stalk and thyrse 4 to 5 feet high; flower-branches pyramidal, flowers two or three, sometimes also more united, unequally pedunculated, campanulate, almost completely ball shaped, closed, waxy-white, widely opened only in the evening; filaments covered with short, hispid hairs, rectangular; pollen waxy-white; ovarium oblong, whitish; pistil trifid, lobes deeply incised.

This splendid Yucca must be hardy in Great Britain, certainly along the coast, as its parents are; as also in Brussels, where it flowers well every summer. It flowers very readily, as do nearly all the hybrids of filamentosa and gloriosa, of which I possess some wonderfully early flowering species or varieties. Yucca Rekowskiana × is worth cultivating for decorative purposes, and for its rich spike of flowers. *Ch. Sprenger, Vomerro, Naples.*

GERMAN SOUTH-WEST AFRICA.

NATIVE VEGETATION.

I am sending you a small bag containing seeds of the so-called Caffir Water-Melon, a variety of Citrullus vulgaris, largely grown by the Hereros in Okahandya, and many other places in Hereroland. [Sent to Chiswick. ED.]. The whites do not cultivate it. Whilst I was there, two months ago, no Water-Melons were to be bought; the Caffir Water-Melon being very late, is but now beginning to ripen. Caffir Water-Melons can be found in the native gardens of Okahandya in various forms, differing in shape, colour, and weight, but I believe not in the seeds, the colour of these being always red, but never black or white, at least I saw red ones only. You will find the seeds rather larger than those of our sweet varieties. The weight of Caffir Melons of all the three or four varieties is generally 6 to 10 kilograms. The flesh is very solid, and when not fully ripe and still tender, it may well be used instead of Cucumber, which is not easy to cultivate; the female flowers are generally fertilised by a fly. The ripe fruits remain hard, and are not sweet, but they may be kept for months in a dry room without rotting. The Hereros slice them, and dry the slices in the sun for winter provision. As required, the dry slices are boiled with water to a soup.

In the dry eastern red sandy region (Omahek) which forms part of the Kalachari, there grows, in many places in masses, the so-called "Sweet Dachammas" (the common or bitter Dachammas is Citrullus vulgaris, the ancestor of our sweet Water-Melons), which is not at all sweet, but is at any rate perfectly free from Colocuinth flavour, as is the cultivated Caffir Melon. That waterless area is in some parts habitable for men and oxen only, owing to the presence of the sweet Dachammas." The Caffir Water-Melon, requiring no cultivation, might advantageously be naturalised in waterless, desert regions, as, for instance, along the Southern Algerian *wadis* (our rivers), Egypt, S. California, and West and Central Australia.

Okahandya is doubtless the most promising place for horticulture in the central part of our colony. Broad meadows, consisting exclusively of Cynodon dactylon grass, edge the Okahandya river, interspersed with welcome groups of Acacia hebeclada, and sometimes of Acacia spirocarpodes; 1·50 to 2m. below the thick, grassy carpet, the water percolates in quantities, and is of the purest quality. The alluvial soil below the grass (to extirpate which is a rather expensive work, the long stolons being as tough as wire) is a highly fertile clayey sand.

The cultivation of Tobacco is increasing in a very satisfactory manner. For sowing Tobacco, clay pots 4 to 5 inches in diameter are now used; formerly the seed was sown broadcast in beds, and the seedlings were planted out without balls of earth, so that they flagged for three weeks, in spite of small huts covering them against the burning sun; they are now planted in any weather, when of the proper size, and with a large ball of earth. Planted in this condition, and at once watered, they do not flag for a single hour, but continue to grow uninterruptedly.

Although pots obtained from Germany are rather expensive here, this method of raising Tobacco is unquestionably to be preferred to all other ways. Every plant, once in the plantation, grows, and there are no dead plants to be replaced; the expensive building of huts made of grass, dry dung, &c., over each transplanted seedling is obviated, and the planting from pots can be effected even by careless natives. This planting out from pots may be strongly recommended to Coffee-planters for these reasons, as well as to foresters for any kind of evergreen tree, even in the driest tropical places, where the seeds are not sown directly in their final position; thus one transplanting is avoided. For this purpose, pots of firm cardboard, which Schmidt & Co., Elberfeld, have introduced, may be used with great advantage. They are to be had in several sizes, and very cheaply, and they do not break as do clay pots; the carriage also is inexpensive (2,000 pots of 7 centimètres, price per mille 18 marks, make only nine post-parcels of 5 kilograms each). These pots last until the trees reared in them are large enough to be planted out. It is true a clay pot lasts for three or four years on an average when carefully handled, but the price for 5,000 such pots of 7 centimètres, costing at Erfurt about 75 marks, is here, in the interior, about 400 marks. To return to my account of the Tobacco: the fermenting is now done here in a proper manner, the leaves are first partly dried, then sprinkled with water, and then fermented; or they are fermented green as they come from the plantation.

The latest plan, which is carried out by one firm is, that the quite fresh leaves are cut with the tobacco-cutting machine, and put into large heaps. Such heaps get warm very quickly, and they are then turned over inside out in a few minutes, whilst the same quantity of leaves would require the labour of one man for half a day. The product is very uniform as regards colour, which is almost black. All the Tobacco cultivated in the country is for local consumption, as good cigar tobaccos cannot apparently be cultivated here, the weed being too rich in nicotine. At this moment only American varieties are cultivated, very seldom N. rustica. Although in Okahandya in winter as much as 4° C. and even more is often experienced, the place being over 1,000 mètres above the sea level, and on the borders of a river from 600 to 800 mètres broad, nightly radiating, unhindered, the sunshine absorbed in the daytime.

Banana cultivation is found possible and steadily increasing; and it is not that of the wild small kinds like M. Cavendishi, but one of the medium-sized forms, which are so extensively cultivated in the Canaries. I am convinced, that under proper cultivation Bananas would yield remunerative crops at Okahandya and in many other places situated north of this village, not for export, but for home consumption. There are, even at Windhoek, several gardens where the same Banana flourishes splendidly and ripens fruit. Windhoek is situated 1,660 mètres above the sea. Near Okahandya there is a tannery where tanning material, the pounded rhizomes of Hydnora africana? are exclusively used with the most satisfactory result. The Hydnora grows there in quantities already diminishing on the roots of Acacia horrida. In Gibeon Namaland, there is another tannery, where Elephantorrhisa Burchelli only is used.

I have not found in the *Gardeners' Chronicle* any articles about forestry in the inner parts of Cape Colony, the Transvaal, and Orange River Colony. Can you not induce some experienced forester there to write a series of articles about forestry in those parts, especially about Eucalyptus planting. It would be indispensable to state the average rainfall, temperature, &c. Thus the statements would serve as a guide for foresters in regions with similar climates. Is there any book on this subject? *Dinter.*

TREES AND SHRUBS.

COTONEASTER HORIZONTALIS.

There is a good deal of variety among the Cotoneasters in regard to habit, but the most distinct of them all in this respect is the species now illustrated (fig. 29). Several of the species have a flat distichous mode of growth, but it is in Cotoneaster horizontalis that this character is most marked and persistent. It is now twenty-five years since Decaisne first named and described this species, its introduction to the gardens of Europe being due to the Abbé David, who discovered it in China. It is not until quite recent years that its merits as a garden plant have been appreciated. Yet it is undoubtedly one of the most distinct and charming of all hardy shrubs. In the open ground it grows about a yard high, producing flat, table-like branches very densely clothed with tiny, orbicular leaves (they are about one-third of an inch long). The foliage is of a deep and very lustrous green, but the young wood is covered with a thick brown wool. The flowers are pink-white, and appear in May and June; although small they are very abundant. The plant is pretty when in bloom, but at that time there are plenty of more noticeable shrubs in flower. It attracts more notice when in fruit; the berries are small, but very plentiful (as may be seen by the illustration), and when ripe they are scarlet. This shrub is very pretty growing on ledges of the rockery, or at the foot of a wall. In the latter position it will grow 6 or 7 feet high, and flat against the wall. It should be mentioned that it is deciduous; although in some catalogues it has been classed with evergreens. It can be increased both by cuttings and seeds. *W. J. Bean, Kew.*

Fig. 29.—COTONEASTER HORIZONTALIS.

BOOK NOTICE.

Les Conifères et Taxacées. Par S. Mottet; Paris, Octave Doin (pp. 474, 132 figures).

This is a small treatise embodying the main points in the history, description, utility, culture, and multiplication of the coniferous plants cultivated in gardens or forests, together with information concerning the diseases to which they are subject, and the insects which prey upon them. The work is dedicated to the memory of Henry de Vilmorin, whose portrait is given, and who, as his brother, M. Maurice de Vilmorin has, had an extensive knowledge of these trees, and who placed his knowledge and his collections at the disposal of the author.

In addition to these resources, the author has availed himself of many of the principal publications on the subject, and has visited numerous establishments, both private and public, where Conifers form a special feature. The genera and species are, for the most part, arranged in conformity with the list published in the report of the Chiswick Conifer Conference. The author has been most loyal in acknowledging the sources of his information, a circumstance which inspires the more confidence in the value of his own personal observations. We do not find, however, any separate reference to the works of Sargent and of Lemmon, which are invaluable for the American species; nor to the treatise of Mayr, on the Japanese Abietineæ. The report of the Conifer Conference should also have been more fully cited.

Actuated by horticultural considerations, M. Mottet has retained the genus Chamæcyparis as distinct from Cupressus, and even keeps up "Callitris quadrivalvis" for the plant which others think should bear the name of Tetraclinis. He does not adopt Mr. Kent's genus Abietia for the Douglas Fir, but retains Carrière's name of Pseudotsuga, an epithet

which, however cumbrous and objectionable, has claims to priority. On the other hand, he refers with just approbation to the division by Mr. Kent of the genus Pinus into six sections—Strobi, Cembræ, Edules, Taeda, Pinaster, and Silvestres. The Weymouth Pine is spoken of as the "Pin du Lord," an epithet not used in this country or in America. P. insignis is kept up, although the weight of evidence seems now to be in favour of the adoption of the name P. radiata, Don. It is true that some individual plants are more tender than others; but this may arise either from individual peculiarities or local circumstances, which are not sufficient of themselves to warrant the retention of two specific names; at least, that is the view of those most familiar with the trees in their native homes.

There are numerous illustrations, which are characteristic, but defective in the circumstance that no scale of magnitude is given.

The presence of "cellules synergides, as constituting the hypoderm," is probably a slip of the pen, which demands correction in the next edition (see p. 23).

On the question of chemical manures, Mr. Mottet gives the wise counsel to abstain entirely from their employment. Fresh loam, road scrapings, or the soil removed from ditches, should be used where necessary in preference to manures of any kind. The sections on planting, reproduction from seed, grafting, and other cultural details, may be highly commended to the consideration of gardeners.

The work is ushered in with an appreciative preface by M. Ed. André, and is completed by an adequate index. As a handbook for cultivators, this admirable little treatise may be highly commended, as giving within small compass just the kind of information that is required. We hope soon to be able to welcome a second edition.

THE ART OF TABLE DECORATION.

(*Continued from p. 61.*)

I come now to the artistic arrangement of plants and flowers on the dining-table. Before I proceed to give a few examples of how I think a table may be effectively decorated, I should like to draw attention to one or two points it is essential to observe before success can be attained. The first is the arrangement of the flowers in the vases or other receptacles. To illustrate what I mean, I will suppose that we have a vase of Roses to arrange, large enough to hold five good blooms with ample foliage, and space enough between to display their grace and beauty to perfection. He then, who would add a sixth or more, on the plea of filling up the vase to make it look more imposing, as he thinks, errs against true art and good taste. I would much rather see one good specimen bloom in such a vase, than I would a dumpy, meaningless bunch squatted together. This principle applies not only to the Rose, but to every other flower which may be used, for each in its way is possessed of some singular and beautiful characteristic of its own, both in foliage and flower. The next point I would mention is—

Harmony of Colour.

For instance, it may be decided to decorate a table on a certain occasion with maybe some of the following flowers—Roses, Azaleas, Sweet Peas, single Dahlias, Tulips, Spanish Iris, Carnations, or what not. If possible, I would prefer to use shades of one colour only in its decoration than I would a multiplicity of colours, although the colours may not offend against correct and harmonious blending. As an illustration, I would again quote the Rose. Nothing looks handsomer than a table decorated with scarlet Roses from the deepest shades of crimson to the lightest of rose, or from the deepest of pink to that of almost white. The same with all flowers where practicable. We know that this is not always so; then the best we can do to attain this end is to dispose the shades of colour as near as we can in the subjects available, although they may be of varied genera and species.

Fixing the Flowers in Stands.

Whatever the ornamental stands may be which we have to adorn with flowers, light and simple cases of zinc should be made to fit them. This is a great advantage in many ways; but chiefly it permits the decorator to arrange his plants and flowers in these cases at home in the garden, or in some room in the house, where he is free from intrusion or interruption, and where the flowers can be kept fresh and cool until a short time before the company assembles for dinner. The outside of the cases should be painted of the same colour as the vase or ornament, in case any part of it may be seen through the tracery of the work. These cases also enable the decorator to use wet clay as the medium for fixing the flowers in instead of water. This I have found of great advantage, as it is possible in this way to fix the flowers in any position you wish, and in which they will remain secure until the function is over. The case is first lined with paper, and the wet clay placed in to a sufficient depth to hold the flowers. This is not necessary in the case of glass vases where you have ample depth of water, as the flowers can be fixed as desired by using a little packing of moss or foliage to support them in position. In the case of flowers with fragile or limp stems, they must be supported by bouquet-wire.

Tracing with Leaves, &c., upon the Cloth.

Considering now the tables themselves. The first things to find out are the size of the table and the number of the guests; also the ornaments it is proposed to use, as well as the receptacles intended to be used for plants and flowers, also the number of dishes of fruit, &c. It is not always possible or convenient to place these ornaments on the table before the garden decorator's work must be commenced; and to get over this difficulty, I have found it an excellent plan to have ordinary plates, approximating as near as can be to the size of the base of the ornaments, &c., to be used, placed on the table temporarily in the positions these will occupy. By this means the space on the surface of the table which will be at the decorator's disposal for tracing is at once defined, and he can proceed with his work, free from the interruption of other people jostling about. When the tracery of the table is finished, it is only the work of a few minutes to remove the plates and substitute for them the ornaments in which are placed the plants and flowers, previously arranged in the zinc cases to fit them. When all are placed in position, all the artist will now have to do will be to give a few finishing touches to the picture, and this is best done when the full light is turned on, when little faults may easily be detected and corrected.

Suggestive Examples.

In endeavouring to give a few examples for the benefit of the inexperienced, of how a table may be effectively arranged, I can only do so briefly, and can only speak in general terms, as the ways in which a table may be decorated are as various as are the tables themselves, and are governed so much by the stands and other ornaments placed at the decorator's service. Practice is the only school in which to learn the art, and it is wonderful how many different ways of treating the subject artistically, suggest themselves to a trained mind, and how much can be made in this direction, with simple material, whether of flowers or of foliage, by a resourceful man. To introduce a change in material, design, and arrangement, every evening for a fortnight or three weeks is no light task.

The Family Dinner Table.

In the case of the homely family table, the more simply and unpretentiously it is decorated the more pleasing will be the effect, anything approaching to a laboured or heavy appearance is objectionable, and hardy flowers should be made use of as much as possible; not only because we have such a wealth of bloom to choose from, but also because the rare exotics of our Orchid-houses and conservatories are thereby spared to bloom naturally in an atmosphere approaching as near as can be to their native homes.

A table of this description having for a centrepiece a glass vase or some other ornament that will hold flowers, may be made beautiful by filling it with Honeysuckle, allowing a few long pieces to hang down until their points rest on the cloth. Four or five low bowls (glass fingerbowls in the absence of anything better, will answer the purpose), should be disposed at a convenient distance from the centrepiece and filled loosely with the same flower, coloured leaves of the Bramble or the Mahonia, or branches of the Honeysuckle itself, may be made use of for a simple tracing. This may take any form the decorator may fancy, some simple and beautiful curve, leisurely as it were winding its way from one end of the table to the other, coiling itself round the bases of the ornaments as it passes by. On this should be placed a few of the same flowers, its whole length, or dotted here and there at intervals of from 6 to 9 inches. Some of the prettiest tables I have seen have been decorated with single Roses. The variety macrantha is a lovely subject for this purpose, it is of large size, pure white in colour, having a prominent centre of rich golden stamens; arranged in vases and on the table with its own foliage, it forms as sweet and pretty a decoration as eyes could look upon. Lord Penzance's hybrids in the many rich colours they may be had are excellent subjects; indeed, the material, especially in summer and autumn, is endless. For a change it is well to use plants in conjunction with flowers, and even sometimes they give an interesting change when used entirely by themselves. These are at hand in rich variety and form; a list of the most decorative I have already given. *Owen Thomas.*

(*To be continued.*)

VEGETABLES.

At this season of the year there is always a large demand for good vegetables. Amongst the best I have found here on a heavy soil, I particularly note Sutton's First Crop Cauliflower as being a first-rate early and successional variety. Of Peas, I cannot speak too favourably of Dickson's Champion Marrowfat, a sturdy grower, and for cropping and flavour everything that can be desired. Sown on the same day with Hurst's Incomparable, another favourite Pea, it was just a week later in coming to maturity.

Dickson's Champion Cos Lettuce is an excellent variety, and their strain of All-the-Year-

Round Cabbage-Lettuces has been excellent all the summer, producing hearts like a stone, and blanched perfectly white. Another good Cabbage-Lettuce worthy of notice is Smith's Champion, which stands a long time without bolting, and forms good hearts, which are well protected by outside leaves.

The thorough preparation of the ground for all vegetable crops cannot be too well considered by the gardener, as I have frequently noticed, on both heavy and light soils, a marked difference in the crops from good, deep cultivation, in which the soil is well pulverised, and the crops from the same nature of land, but poorly cultivated. *Alf. D. Morris, Horsley Hall Gardens, Eccleshall, Staffs.*

ROYAL MEMORIAL TREES AT EASTWELL PARK.

For twelve years the home of the late Duke of Saxe-Coburg and Gotha, then the Duke of Edinburgh, Eastwell Park, Kent, was, during

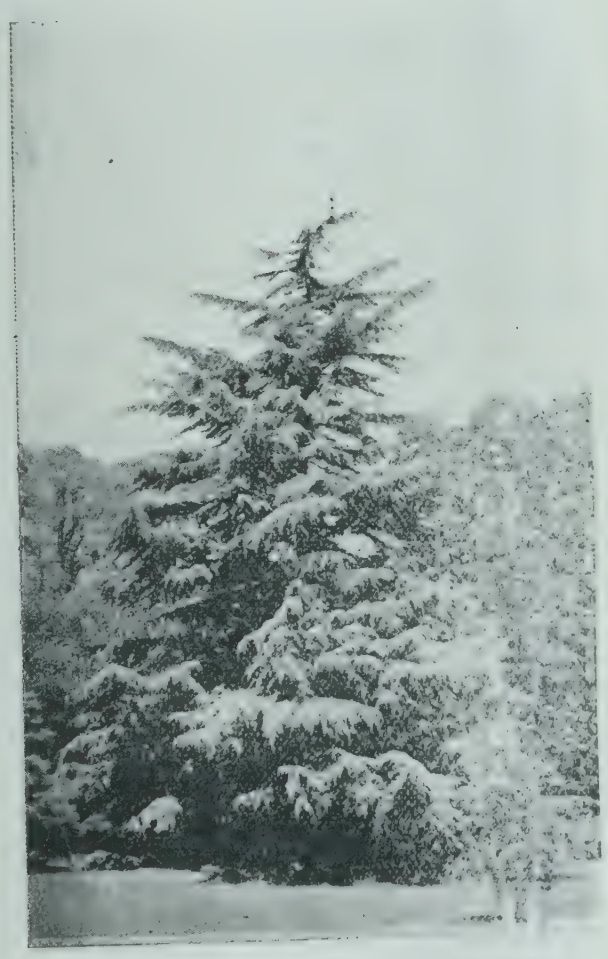

Fig. 30.—CEDAR AT EASTWELL, PLANTED BY KING EDWARD VII.

His Royal Highness' tenancy, visited by a great number of Royal personages. The planting of trees by these Royal visitors as mementos of their stay, adds an additional interest to this already historical place. The trees around which most interest centres at the present time are two specimens of Cedrus Deodara, planted on Feb. 26, 1875, by King Edward VII. and Queen Alexandra, of which illustrations are given in figs. 30, 31. Both these Cedars are over 50 feet high, and are very fine specimens. Another Deodar planted on the 23rd of January in the same year by the late Grand Duke Serge Alexanderovitch of Russia, is over 60 feet high. This tree is sheltered from the east winds by a large Oak, which probably accounts for its greater height. A Cupressus (macrocarpa) Lambertiana planted by the present Prince of Wales on February 7, 1885, is nearly 70 feet high; Abies nobilis, 40 feet high, was planted by the Grand Duchess of Hesse, on October 24, 1879; Retinospora plumosa, 20 feet high, was planted by the Duchess of Connaught, on January 13, 1881; a very fine specimen of Cedrus Deodara, 40 feet high, was planted by the Duke of Cambridge, on December 30, 1875; two plants of the same variety, and planted respectively by the late Duke and the present Duchess of Saxe-Coburg, on January 23, 1875, are between 40 and 50 feet high; Thuja occidentalis var. Vervaeniana, planted by the late Duke of Teck, is 12 feet high; Retinospora ericoides, planted on the same date by the late Duchess of Teck, is 14 feet high; Cupressus Lawsoniana, over 20 feet high, was planted by the Grand Duke of Hesse, on October 24, 1879. There are many other trees which were planted by Royalty, but the gardens in those days were of very small dimensions, which necessitated planting the trees too closely together, that the beauties of some of them are lost, and the plants ruined. One item of special interest is a Lime branch which was layered by the late Duke of Saxe-Coburg himself; it threw up an upright stem from the layered branch, which has developed into a very fine tree, and the layer still remains unsevered from the stock.

Since these notes were written, Lord Gerard, the owner of Eastwell, has died. Acquiring the estate from the late Earl of Winchelsea in 1893, the deceased nobleman spent large sums of money in extending the gardens, and erected a very large amount of glass. Passionately fond of shrubs, he planted them by the thousand. The old kitchen garden of two acres was converted into a Rose garden, arches of Roses, hedges of Roses, tents of Roses, were created by his Lordship and Lady Gerard. Ornamental lakes were formed, and the large winter-garden and conservatories adjoining the house are amongst the largest in this country. Twice during his ownership Lord Gerard was honoured by visits from King Edward VII., and once by the late Duke of Saxe-Coburg, who desired to see his old home after it had been remodelled. And so, amid the flowers that he loved so well, and in the garden of his own creation, Lord Gerard was suddenly taken ill in the middle of May, an illness from which he never recovered, and passed peacefully away early on July 30. By Lord Gerard's death horticulturists have lost a liberal supporter, and the army and auxiliary forces a valiant soldier. *H. W.*

REMARKS ON THE FRUIT CROPS.

(*See Tables, ante, pp. 69 and 72—77.*)

The tabulated reports upon the fruit crops, which were published in last week's issue, showed what prospects there are in about 300 localities of the United Kingdom. Many of our correspondents, who kindly furnished us with those reports, have also remarked upon the apparent reasons for the crops being good or bad in their particular districts. We have not space to print them all, but the following extracts are selected as being among the most interesting. The general complaint of the weather appears to be that it was exceptionally cold and sunless during the period when most fruit-trees were in bloom; and many of the fruits that set under the ungenial conditions were unable to stand against the unusually cold weather throughout May and in the first half of the month of June. The crops everywhere are very late.

SCOTLAND, N.

Ross-shire. — Early-flowering fruit trees, such as Pears, Plums, and Cherries, were injured by cold weather in May and early June, consequently the crops are light, notwithstanding an abundant blossom. Apples re a a good average crop, except in low-lying districts. Strawberries have been plentiful, but were small in berry, and lacked flavour. Small fruits have been plentiful and good. Apricots and Peaches do not succeed out-of-doors at Ardross, but in one or two favoured localities by the Cromarty Firth both are average crops. All fruit crops are three weeks later than usual. *William Minty, Ardross, Alness.*

SCOTLAND, E.

Aberdeenshire.—There was a great amount of blossom on all fruit trees, but the continued cold and wet weather at that time resulted in a poor set of fruit, on many trees none at all. Small fruits have been better, and are a good crop, but two or three weeks later than usual. *John Forrest, Haddo House Gardens, Aberdeen.*

—— The fruit crops in this neighbourhood are very disappointing. Apples are few; Pears a failure; Plums are partial, but Victorias are the best. *John Brown, Delgaty Castle Gardens.*

Fig. 31.—CEDAR AT EASTWELL, PLANTED BY QUEEN ALEXANDRA.

—— The worst fruit season here for the last thirty-three years. A very cold, wet season; the minimum thermometer registered 36° on July 11, and there have been many nights when the temperature has been nearly at freezing point since May 15. *Robert Littlejohn, Gardener, Tillypronie, Farland.*

Berwickshire.—Judging from the amount of blossom, we never had better prospects of an abundant fruit crop, but owing to the abnormal spell of cold weather we had in May to the third week in June, the fruit did not set well. Apples suffered most. We had very little sunshine, and the wind was generally north or east. Pears are better. Plums set well, but latterly have suffered much from black fly. Small fruits have done well. Among Apples, Monk's Coleross, Bramley's Seedling, Stirling Castle, and Cox's Pomona yielded

the best crops. Among Pears, the best are Doyenné du Comice, Beurré Diel, and Williams' Bon Chrétien. *John Cairns, The Hirsel Gardens, Coldstream.*

Fifeshire.—The fruit crops are exceedingly variable. On the authority of a traveller, who has been all over the United Kingdom, the Plum crops in East Fife, especially those on the wall, are the heaviest observed by him. This statement corresponds with facts ascertained here. So far as the season has gone, the fruit crops are exactly two weeks later than last season. *W. Williamson, Tarvit Gardens, Cupar.*

Forfarshire.—There was no frost to hurt the Apple blossom here, which was abundant, but the cold, damp weather at that time was not favourable to a good set, and therefore the crop is much below the average. Pears are a very thin crop, though they also bloomed freely. Plums set well, and are a fine crop. *W. McDowall, Brechin Castle Gardens.*

—— The fruit crops here are average. The rainfall has been much below average. Gooseberries are again affected with red-spider and caterpillar. Raspberries and Currants are a heavy crop, and of good quality. *Thos. Wilson, Glamis Castle Gardens.*

Haddingtonshire.—I have never previously seen small fruits bear so poor a crop. Raspberries, Gooseberries, and perhaps Brambles, being the only kinds that are average. Pear and Apple-trees have been almost defoliated by insect and fungoid pests, but are now beginning to improve. The fruit is sure to be lighter than usual, being so late, and there will be a difficulty in meeting current demand, especially in the case of Pears. Apricots and Peaches are in perfect condition. *R. P. Brotherston, Tyninghame Gardens.*

Kincardineshire.—Entirely owing to the weather the fruit crops, and more especially wall fruits, are very disappointing. The wood ripened well, and the blossom was lovely, but cold frosty winds with an entire absence of sunshine, coupled with the fact that there were no bees or insects to carry on the work of fertilisation, left us with a very poor crop. All fruits are late, and Apples and Pears will hardly have time to mature. *John M. Brown, Blackhall Castle Gardens, Banchory.*

Midlothian.—The exceptionally fine summer and autumn of 1901 produced this spring an extra quantity of flower on all kinds of fruit-trees. Peaches and Apricots required much thinning, although severe frosts occurred when they were in flower. Pears and Plums were destroyed by sunless weather and north-east winds; Apples set well, but cold nights and sunless weather have made the season the latest for many years. A large quantity of the young fruits dropped, leaving a disappointing under crop. *James Whytock, Dalkeith Gardens, Dalkeith.*

Perthshire.—Apples are a very poor crop, except upon odd trees, including some that did not bear well last year. Peaches and Nectarines are a good crop at Kinfauns, and at other places further down the Carse O'Gowrie. *J. Leslie, The Gardens, Pitcullen House, Perth.*

SCOTLAND, W.

Argyllshire.—The intensely cold weather at the flowering and setting periods did much damage to the crops. Strawberries had an abundance of flower, but they were injured by frost; and at ripening time we had much rain—on July 12, 1.15 inch rain was measured. On July 21 the thermometer showed a minimum of 33°. The crops are quite three weeks late. *D. S. Melville, Poltalloch Gardens, Lochgilphead.*

Ayrshire.—The fruit crops here are mostly of a poor nature in quantity and quality. The very cold weather in June had a bad effect on them. Raspberries are a good crop, but late; and Gooseberries are a fair crop. Apples and Pears are few and small. *W. Priest, Eglinton Gardens, Irvine.*

Bute shire.—Strawberries are grown extensively by the market men here. The largest grower reports that this is the worst season for thirty years. On June 1 there was a gale of east wind which made dreadful havoc. Strawberries were in bloom, and enormous quantities of blossom were utterly destroyed. Fruit and other trees exposed to the full fury of the blast were blackened as in November, and many lost every leaf. *William Cuthbertson, of Dobbie & Co., Rothesay.*

Dumfriesshire.—"The worst season within the memory of man," is the common expression one hears when discussing the merits of the weather during the current year. The daily records taken during last winter show unusual long periods of excessively severe frost, and heavy falls of snow. The spring months followed without giving us any real spring weather. But so far as fruit and vegetables are concerned, May and June were the damaging months in this district. A low, damp night temperature continued during these two months, with frost almost every morning, ranging from 4° to 10°, also dull, sunless days, with a steady cold current blowing from the east, north, and north-east. At this period all kinds of fruit trees, early Potatos, Peas, &c., suffered much damage. On the mornings of June 7, 8, and 9, we had 3°, 5°, and 6° of frost. All hope of a good fruit year was abandoned, notwithstanding the excellent conditions into which the trees and bushes were brought by the fine summer and autumn of 1901. Apples and Strawberries are the only fruits that are giving anything like an average crop. Pears, Plums, Peaches, Nectarines, Raspberries, and all bush fruits are very much under the average. Vegetables suffered from the same causes. In these gardens we had to wait till July 8 before a dish of either Peas or Potatos could be obtained from the open border—quite three weeks later than the usual time. *John Mackinnon, Terregles Gardens, Dumfries.*

Stirlingshire.—Apples, Pears, and Plums on walls and standards are much affected with green and yellow fly. The cold late spring and summer, with frosts at night during the time the trees were in flower, have much injured the crops of Apples, Pears, and Plums. All crops are three weeks later than usual. *Alex. Crosbie, Buchanan Gardens, Drymen.*

Wigtonshire.—The fruit crops are most disappointing throughout, seeing the excellent show of bloom in spring. Insect pests are very prevalent, and where constant means have not been taken to combat these, much of the foliage has been destroyed. *James Day, Galloway House Gardens.*

ENGLAND, N.E.

Durham.—The trees had an abundance of blossom, and they set well, but the cold season following caused the fruits to drop. Apples, Pears, and Plums suffered the most. *R. Draper, Seaham Hall Gardens, Seaham Harbour.*

Northumberland.—The Apple crop is very partial this year, the wet weather at the time of flowering spoiling most varieties. Bramley's Seedling and Lane's Prince Albert are varieties that stand best against our seaside climate; and the sea fogs are very trying, more so even than late frosts. Wall fruits are especially good, including Apricots, Peaches, Pears, and Plums. *George H. Ackroyd, Howick Gardens, Lesbury.*

Yorkshire.—The fruit crops are not satisfactory in this district. After a very good show of bloom in May, followed by cold wintry weather in June, the young fruits, and in the tender varieties of Apples, Pears, Plums, and Cherries, did not set perfectly. Some varieties of Apples, viz., Keswick Codlin, the old local Cockpit, or Cockle Pippin, Cox's Orange Pippin, and King of the Pippins, are well cropped; as also are some of the common varieties of Pears, viz., Hessle, &c. Strawberries on the plants treated as annuals were plentiful. The old variety Grove End Scarlet, is used here for preserving. The Loganberry and Raspberries are good. Gooseberries show heavy crop and the trees are clean. Currants of all kinds have suffered from aphides and blight, but have an abundance of fruit on them. Apricots on outside walls are very thin, but there is an abundance of fruit in the open glass shed; also of Plums in the glass shed. "Moral:" cover the walls with glass sheds, and plant fruit trees in the front of the sheds, not against the walls. *Bailey Wadds, Birdsall Gardens, York.*

—— The fruit crops in this part of the West Riding are very irregular. The trees were laden with blossom, but suffered greatly from the cold winds and late frosts, which prevailed at that time, and on May 8, 7° of frost was registered at Otley. Dessert Cherries have been very scarce. *Jno. Snell, Farnley Gardens, Otley.*

—— This is the worst season we have had for a number of years. There was a great show of bloom on nearly all fruit-trees, but I regret to say very little fruit. In this immediate neighbourhood, the frost was not responsible for any injury to the bloom; the prolonged cold during May not only spoilt the crop of fruit, but also brought a plague of insect pests, many trees being much injured. Apples, Pears, and Plums are yielding a fine crop; Currants have lost a quantity of foliage and fruit, the little fruit left being dirty and deformed. The only really good crops have been Peaches, Gooseberries, and Raspberries. *J. S. Upex, Wigganthorpe Gardens, York.*

—— There was an abundant blossom on all kinds of fruit-trees in the spring. Owing, as I think, to the very dry season last year, coupled with the wet and somewhat ungenial weather at blossoming-time this season, there is not such a good set of fruit as one might have expected. While the weather was cold at the time, I do not think any injury was caused by actual frosts. With the exception of Currants of all kinds, fruit-trees generally are healthy, and free from insect pests. As bearing upon the perennial subject of protecting Apricots in the spring, it may be worth mentioning that we have a standard trained tree on a west wall that has for two years now given us quite as good a crop of fruit though quite unprotected, as the ones on a south wall, which are. Our usual protection is an ordinary herring-net doubled. *Henry J. Clayton, Grimston Gardens, Tadcaster.*

—— The Apple crop is very good here, especially the varieties Domino, Lane's Prince Albert, Duchess of Oldenburg, Lewis's Incomparable, Ecklinville Seedling, and the Keswick Codlin. Pears are very poor, and Plums a thin crop. Cherries are good, and Apricots a very heavy crop. Raspberries and Strawberries have been very poor; black and red Currants only moderate; Peaches good, and Gooseberries exceptionally abundant. *A. E. Sutton, Castle Howard Gardens, Welburn.*

(To be continued.)

THE GENUS ASTILBE.

Astilbe chinensis, var. Davidii.—Amongst the many beautiful plants which have been brought home by Mr. E. H. Wilson, the collector sent out to Central China by Messrs. Veitch, one of the most striking is an Astilbe, which is quite new in cultivation, and attracted great attention when shown at the Drill Hall on Tuesday last. This plant is Astilbe chinensis, Maximowicz, var. Davidii, Franchet; but as it is markedly different from the form of Astilbe chinensis introduced some years ago, it will be convenient to call the new variety Astilbe Davidii of gardens.

Astilbe Davidii is a strong plant, attaining 6 feet in height, and perfectly hardy in this country. Indeed, it has already produced here good seeds, from which living plants have been raised. It bears a large panicle more than 2 feet in length, of a beautiful violet-purple colour in the mass. The flowering rachis and its branchlets are covered with a thick brown tomentum, while the stem below is glabrous. The calyx is pink; the petals bluish-violet; the stamens have violet filaments, terminating in blue anthers.

The plant which has hitherto been known in gardens as Astilbe chinensis was introduced in 1892, and is said to be from China (see *Garden*, xlii., 221), but it is more probably from Japan. It is Franchet's variety japonica of Astilbe chinensis. As an ornamental plant it is much inferior to the new introduction; its panicle is not half the size, and is either whitish or a dull salmon-pink, while the rachis is devoid of the brown tomentum of A. Davidii. The racemes are few in number comparatively, and come off almost horizontally; those of Davidii are much more numerous, and are directed upwards at an angle of 45°. The stem below is hairy, while A. Davidii is glabrous below. The petals are white, and short and broad, the pinkish colour being due to the calyx.

There is a large series of herbarium material of Astilbe chinensis at Kew; and it can be divided into the three varieties described by Franchet in *Pl. Davidianæ*, i., p. 122. The type specimen was collected in the Amur region, and is Franchet's variety typica. This variety is a beautiful form, but not so fine as Davidii; and it has not yet been brought to this country. The distinctions between the three varieties are as follows:—

1. *Var. Typica.*—Occurs in Amurland, North China, Mupine. Calyx and bracteole yellow, petals white, filaments lilac, anthers blue. The petals are narrowly linear, four times as long as the calyx, and obtuse at the apex. The flowers are congested into dense racemes. The rachis and its branchlets are brown, hairy. This is the plant described by Maximowicz in *Prim. Fl. Amurensis*, 120, as Hoteia chinensis.

2. *Var. Davidii.*—Mongolia (Jehol), Central China. Now introduced into cultivation by Messrs. Veitch. Collected by me in Hupeh, Nos. 174, 1853, 7278, 7448. Calyx pink, bracteole brownish, petals violet, filaments violet, anthers blue. The petals are narrowly linear, four times as long as the calyx, and not dilated at the apex, which is acute. Flowers in dense racemes, rachis and its branchlets covered with a dense brown tomentum. This plant is known to the Chinese as Hung Sheng Ma, i.e., red Sheng Ma. Sheng Ma is a general term in Hupeh, for Astilbe, Aruncus, and Cimicifuga. In the Japanese books Astilbe is identified with the Chinese name, Lo Hsin Fu; but I have not been able to trace this appellation in Chinese botanical works.

3. *Var. Japonica.*—Occurs in Japan; the form introduced into cultivation in 1892. Petals white and somewhat dilated at the apex, which is obtuse. The petals are shorter than in the preceding varieties, and are scarcely three times the length of the calyx. The rachis has no brown tomentum, and is variable in pubescence, being occasionally almost glabrous. The flowers are loosely racemose. This variety exhibits a transition towards Astilbe Thunbergii, as the racemes are loose, and the petals are obviously spatulate. It differs so markedly in appearance in its cultivated state, that it perhaps merits to be treated as a distinct species; but a field study of the different forms is necessary, and in the present paper I think it hazardous to disturb Franchet's arrangement. *Augustine Henry.*

(To be continued.)

Fig. 32.—Silver vase, to be offered for best collection of twelve bunches of grapes, at Shrewsbury, August 20, 21.

A SILVER CHAMPION CUP FOR GRAPE CULTIVATION.

We publish in fig. 32 an illustration of the handsome Silver Cup offered by the Shropshire Horticultural Society for competition amongst Grape-growers at the exhibition to be held at Shrewsbury on August 20 and 21. This Cup weighs about 220 oz., and stands on the pedestal 34 inches high. It is offered for competition in class 70 of the Society's schedule for the best "twelve bunches of Grapes in four or more distinct varieties, but not more than four bunches of any one variety." The winner of the 1st prize, in addition to retaining the Cup for the year, will receive £20 in cash; and the other prizes offered in this class are as follows:—2nd prize, £12 and a special prize in value of £8 8s., offered by Messrs. W. Wood & Sons, Ltd.; 3rd, £10; 4th, £7 10s.; 5th, £5; and 6th, £4. The whole of the classes in the fruit section have been framed with the Society's usual liberality to exhibitors, and we anticipate one of the finest exhibits of Grapes and fruit generally at the forthcoming show ever witnessed in this country. The courteous and energetic honorary secretaries, Messrs. Adnitt and Naunton, are well known to most horticultural exhibitors in this country.

ORCHID NOTES AND GLEANINGS.

Lælia glauca.

But little has been seen of this pretty Mexican and Guatemalan Orchid for some years until lately, when it has again become tolerably plentiful, and hybridists are using it with caution, for it is a speculative subject, though the pretty white Lælio-Cattleya × Orpheus (L. glauca × C. Trianæi alba), for which Messrs. Jas. Veitch & Sons secured an Award of Merit at the Royal Horticultural Society on Jan. 14 last, proves that good may result from it, especially if crossed with an albino. A number of good plants of Lælia glauca have been in bloom for some weeks in an intermediate-house in the garden of Gurney Wilson, Esq., Christchurch Road, Streatham, which is kept at a temperature of 55° Fahr. at night, and 65° by day. The plants are either suspended, or placed on a shelf near the glass of the roof. The flowers are nearly 4 inches across, white, with a pale green tint on the sepals, and a small purple blotch on the lip at the opening of the tube.

Cattleya × Pittiana.

Few Orchids with showy flowers exhibit such wonderful delicacy of tinting as this charming hybrid between Cattleya Dowiana aurea and C. granulosa Schofieldiana, which has flowered in the collection of H. T. Pitt, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood). The sepals and petals are in the main

like those of C. aurea, but the brilliantly showy labellum, as usual with C. granulosa crosses, closely approaches that species in form, its leading characters the deeply-cleft side-lobes of the lip folded over the column, and the inch long isthmus connecting them with the broadly reniform front lobe, being well defined. The flower, which is 7 inches across, is of fine substance, and its colouring indescribable, so beautifully is the tinting and veining interwoven with the ground colour. The ground colour of the sepals and petals is cowslip-yellow, a faint greenish tinge appearing on the basal parts, and the tips of the sepals. Up the middle of each segment a broad band of the yellowish colour is left untinted, with the slight rosy hue which suffuses like a blush the remainder of the segments; the petals, upper sepal, and in a less degree the lower sepals, having the veining followed by a delicate tracery of rose. The side-lobes of the labellum are yellowish, tinged with rose, the reflexed tips being carmine; the isthmus, and fringed and crimped blade of the lip ruby-red, with a yellowish-red glow showing through in places, the margin being lavender colour, changing to white on the frilled edge. Such beautiful productions are rare, and when they do appear give great encouragement to the hybridiser. *J. O'B.*

COLONIAL NOTES.

EUCALYPTUS COCCIFERA.

WITH reference to Mr. Divers' letter on Eucalypti, at p. 140 of your issue of March 1, I desire to say that in my opinion there is no doubt that Eucalyptus coccifera is a good species, and quite distinct from E. amygdalina. The former is a shrub or small tree, chiefly found near the summit of Mount Wellington, Hobart, Tasmania; the latter is usually a fairly large tree, widely diffused in Tasmania and Australia, and known as Peppermint. E. coccifera does best in England, because it never grows naturally except in cold localities. E. resinifera is the "Forest Mahogany" of New South Wales, and grows naturally in rather warm situations, i.e., at no great elevation above the sea-level. Of course, like many other species, it can be gradually acclimatised into somewhat colder places. E. ficifolia is a small Western Australian species, with beautiful masses of flowers, varying from pink to scarlet. It grows well about Melbourne (Sydney is too warm for it, except in exceptional circumstances), and seed can be purchased from any good Melbourne firm. It is apt to die off at the collar if the situations be too moist. *J. H. Maiden, Sydney.*

CEYLON BOTANIC GARDENS.

The Reports for the year 1901 have been received, and afford evidence of the energy and progress which characterise the Directorate:—

"The organisation of the Department upon modern lines has continued, and is becoming fairly complete in the case of two of the three main subdivisions which are proposed, the scientific and the botanic and horticultural gardens divisions. The third, or division of experimental gardens, is as yet only under consideration, but it is hoped that it may soon be organised. The scientific division, which includes the director, mycologist, entomologist, chemist, and assistant, is charged with the scientific investigation of the flora of Ceylon, both indigenous and introduced, with special reference to the economic uses of the plants and the diseases that attack them. The work of this division includes the upkeep and working of the laboratories, library, herbarium, and museum; tours in the island for the study of plants, cultivations, and diseases, the giving of advice and assistance in all such matters to officials and cultivators, personally and by letter; and most important of all, the continual carrying on of researches upon the physiology and pathology of plants, their structure, distribution, and other subjects. Successful practical applications of science must be based upon thorough scientific investigations; such work is laborious, and needs long periods of time, and it is of the greatest importance that the scientific officers should have the greater portion of their time at their disposal for such work. The appointments of the entomologist and mycologist in particular have met with much appreciation, and their help is so constantly sought that a very great part of their time is taken up with personal visits, interviews, and correspondence.

"The second division of the Department (Botanical and Horticultural Gardens) includes the five gardens in different parts of the island, and it has lately been decided by Government to open a sixth very small garden in the new park at Nuwara Eliya, with the view of trying what can be done on the peculiar soil of that place. The main duty of this division is to introduce and cultivate a few specimens of every possible kind of plant that may prove of use or interest, and to provide beautiful gardens for the pleasure and instruction of the public. At the same time it provides instruction and advice on horticultural matters, and supplies seeds and plants to the public in small quantity. It is no part of the duty of a botanic garden to make large-scale trials of economic plants, or to supply large quantities of seeds or plants. This is the work of an experimental garden, and hitherto such an institution has been wanting in Ceylon; but negotiations have been in progress during 1901 with the object of providing such a garden, where experiments may be tried on a commercial scale with staples or with plants which may become staples."

The Week's Work.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Sobralias.—The flowering season being over, and the second batch of young reeds having commenced to grow, the plants may be resurfaced, repotted, or divided, as may appear necessary. Use a compost of two-thirds good fibrous loam, one-fifth each of good turfy peat, leaf soil (not too decomposed), and chopped sphagnum. Mix these well together, and add a liberal sprinkling of small crocks. Make the compost rather firm, and keep it just a little below the rim of the pot, and the crown of the plant level with the compost. Be sure each pot is crocked to the depth of one-third, for when the plants are growing freely they require an abundance of water. Plants that are growing freely in small pots should be potted on without root disturbance, beyond liberating the outside and surface roots so as to induce them to enter the new compost quickly. Specimen plants that are considered too large to be repotted should be pulled to pieces, taking the greatest care whilst liberating the fleshy roots from each other, to preserve as many as possible. Cut off cleanly all broken roots just above the point where they are broken. The specimens may then be rebuilt, or be divided among as many pots as the grower may think convenient. When repotted, insert a few heads of living sphagnum upon the surface. Sobralias should be grown in the intermediate-house, and they require pure air and abundance of atmospheric moisture. Spray them with the syringe on all bright days during the greater part of the year. Newly-potted plants and those that have been divided will require to be afforded water carefully for a time.

Sophronitis grandiflora is making growth, and any potting or surfacing that is necessary should now be done, using a compost of equal parts fibrous peat and chopped-up sphagnum. In most cases surfacing will suffice, for this species should not be disturbed unless the compost is in a very decomposed state, or the centre of the plant shows sign of decay. In the latter case the plant should be divided to allow of the removal of the decayed portions. Choose shallow pans for their cultivation, and provide good drainage. They are surface-rooting plants, and require but very little compost. Place them in the lightest part of the cool house, and suspend them from the roof.

Odontoglossum Rossii.—Having rested during the early summer months, this variety has again commenced to grow, and is getting sufficiently advanced to allow of the necessary repotting or surfacing being done, with equal parts fibrous peat and chopped sphagnum. Use shallow pans, and let the drainage consist of Fern-rhizomes. Pot rather lightly, keeping the base of the growths and compost on a level with the rim of the pan. Suspend the plants from the roof of the cool Orchid-house.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Dwarf Ulm Savoy.—Where a good sowing of this was made about the middle of June as I advised, they will now be good-sized plants, and sufficiently firm in the stem to withstand dry weather after being set out, and afforded the usual liberal watering. By setting out the largest plants together, and continuing to plant at intervals of a week or fortnight, a good succession can be secured. The rows should be 21 inches distant from each other, and the plants 15 inches apart in the rows.

Autumn Giant Cauliflower. — Late-raised plants of these should be set out in quantity on warm borders whence Strawberries or other early crops have been cleared. They afford a useful supply of heads late in the autumn and well into the winter, in the event of no very severe frosts occurring. The rows may be 27 inches from each other, and the plants 21 inches apart in the rows.

Onions. — Any autumn-sown Onions with necks still thick and green may be given a sharp twist and bent over, which will aid the ripening of the bulbs. Queen Onions for pickling may now be taken up. Spread them out on a floor of an open shed, and turn them over occasionally until dry enough to be cleaned, when they should be sent to the kitchen. Silver-skinned Onions will shortly be ripe enough to be treated similarly.

Coleworts.—Plant out these on land that has been occupied with Peas, Potatos, or other early crops, after shallow-digging the land with forks, thoroughly breaking up the ground between where the rows of Peas grew. The Hardy Green should be planted at 18 inches from row to row, and 1 foot apart in the row, and Rosette 21 inches from row to row, and 15 inches apart in the row.

Lettuce.—In northern localities the Brown Cos variety should be sown not later than August 10 for planting out during the autumn, but August 15 will be early enough in the south. Sow seeds also a fortnight later in either locality for a crop to stand in the seed rows during winter; also Stanstead Park for transplanting on to a warm border, and Commodore Nutt sow very thinly for an early winter supply.

Celery.—For the next month at least the main crop should be afforded copious root waterings at least twice a week. Keep the trenches free of weeds, and in the case of those planted latest, move the surface of the soil with a 3-inch Dutch-hoe. Where Celery is liable to be attacked with the leaf-mining maggot, dust some fresh soot over the plants to deter the parent fly from depositing her eggs. Continue to earth-up the earliest Celery as advised in a former Calendar.

Parsley.—In dull or showery weather transplant from the sowing made at the end of May or beginning of June. Plant them in rows at 15 inches apart, and 9 inches apart in the rows. If Parsley was not sown on a border where it can be protected with a skeleton frame and lights for the winter, put out some young plants into a frame or brick pit at once for yielding a supply during hard frosts; shade the plants with sheep-hurdles for a day or two. Parsley being abundant now, cut over the earliest sowing, and those rows which were not thinned whilst the plants were small. This can be done after they are cut over.

Broccolis, &c. — Continue to earth up the earliest Broccolis, Kales, and the later planted

Brussels Sprouts, doing the work after a fall of rain if possible. Flat tined digging-forks are the best tools for the job.

Vegetable-Marrows should be supplied with water to prevent them becoming exhausted. Cut the fruits before the seeds begin to ripen. Where grown on old hot-beds with a quantity of soil, they require very little attention, the beds retaining sufficient moisture from the previous winter.

THE FLOWER GARDEN.

By R. Davidson, Gardener to Earl Cadogan, Culford Hall, Bury St. Edmunds.

Liliums.—Where new clumps or plantations are to be made, the ground should be prepared forthwith. L. candidum succeeds best in a rich, rather heavy loam, which should be of a good depth; and if the soil be very light, new loam should be added. When planting, the soil should be made firm under the bulbs, letting each one rest firmly on its base, a free sprinkling of sharp sand being placed under and around them. Cover the bulbs evenly with soil to the depth of about 4 inches. In cases where these bulbs are established, and are free from disease, they may be left undisturbed for years. L. elegans and its varieties are very ornamental. L. rubellum, L. Hansoni, and L. Martagon album are all of easy cultivation; the latter is an exceptionally fine variety, its snow-white, beautifully reflexed flowers being produced in perfect pyramidal form. All these Lilies may be lifted as they ripen their growths, rearranged, and planted in the ground; or if this be not convenient, they may, after due exposure to the sun, be stored in quite dry sand in the root-store, and kept thoroughly cool until a little later in the season.

Amaryllis Belladonna and its varieties are amongst the most beautiful of hardy bulbs for flowering in the autumn. Plant best bulbs only, and select for them a position that is well exposed to sunshine, and is sheltered from the north and east. Before planting, be careful to provide ample drainage. The soil should preferably be light, and fairly rich.

Ranunculus and Anemones.—Tubers of these must be taken out of the ground when fully ripe, and after exposure for a few days, stored away when quite dry till needed again for planting. Tuberous-rooted Anemones are most injured if left in the ground, more especially in such as is heavy and wet. They should be lifted, and stored in a dry place until the planting season comes round.

Border Carnations.—The propagation of these plants by layering should be attended to without delay, first operating on the earlier varieties and those that have flowered. A compost of leaf-mould, loam, and sharp sand, in about equal proportions, having been prepared, select a number of well-developed shoots that are not too gross, from each of the plants, and denude these of their leaves at the base of the young wood; place a layer of the compost about 2 inches in thickness about the plants, the shoots next being laid out through, and carefully slit upwards with a sharp knife, the cut extending through one or more joints of the bare stem, so that a tongue is formed; then place in position, and secure with a peg, taking care that the incision is kept open, and cover the part operated upon with soil about 1 inch deep to a point a little beyond the peg. Well water them afterwards, and if dry weather ensue, water must be afforded as often as appears necessary until the layers have made some roots.

THE HARDY FRUIT GARDEN.

By J. Wood, Gardener to the Hon. Miss Assheton-Smith, East Sheen Lodge, Surbiton.

Raspberries.—As soon as the crop is cleared, remove the nets, and cut off at the ground level all canes that have borne fruit this season, also the weaker canes of this year's growth if there are too many. When tying the young canes to the wires or stakes, the tops may be shortened a little now, if much above the requisite height, so as to prevent the wind twisting them at the bottom, but the general shortening of the canes should be delayed until the buds are swelling freely in early spring. Do not tie the canes tightly when fastening them to the supports; and I have found 3-ply fillis much better than tar cord for the purpose; it is much cheaper, and lasts a year quite well. If there is plenty of good manure at hand, a fresh mulch would benefit the root-stocks at this season, and may be afforded also to the autumnal bearing kinds, which have not required many artificial waterings this year owing to frequent rains.

Black Currants will not keep well on the bushes nearly as long as the red ones. Therefore they should be gathered before they are likely to drop or shrivel; and old bushes should have part of the branches that have borne fruit cut clean out—this will strengthen the young wood springing from the base, and give the shoots a better chance to become matured by the end of summer. A mulch of manure around such old bushes would do good.

White Currants are most useful for dessert, but they should be fully ripe before gathering for this purpose, especially so if planted on north walls where very little sun can shine on them to assist in ripening the fruit. White Currants mixed with a few red ones make a showy dish for the table.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith, Scotland.

Pineapples.—Afford plenty of air during the day to plants of the Queen Pineapple now ripening their fruit, and keep the atmosphere of the house rather drier, also afford rather less water at the root. Plants with fruit now swelling should be looked over twice a week, and afforded liquid manure. Maintain a good bottom-heat, and if the weather continue cold, a night temperature of 70° must be maintained by the use of fire-heat. Now is the time to secure suckers of Queens, putting them in well drained, clean 6-inch pots, and using moderately light fibrous soil. Pot firmly, and plunge them in bottom-heat in a bed having a temperature of 80°. The atmosphere of the house should be about 60°; apply no water for a time. Syringe the plants, and close the ventilators at 4 P.M. with sun-heat. The varieties Smooth Cayenne, Black Jamaica, &c., that will yield fruit next winter and spring should be encouraged to make growth. Close the house at 4 P.M., and allow the temperature to rise to 80° or 100° with sun-heat. Let the atmosphere be moist, and keep a night temperature of 70°. If additional plants are still required, repot some rooted suckers now into 11-inch pots, in which they will fruit; they will form a succession.

Melons.—Put out some young plants to yield the latest crop, either into a bed having bottom heat, or in pots to be placed in a pit having a bottom heat of 85°, and an atmosphere of 70°. If the plants are put into a bed, make rather small mounds of soil for each plant, using fibrous loam of rather heavy texture, mixed with lime-rubble and a little fertiliser; make the soil firm, and afford no water at the root for a time, but maintain the atmosphere moist. If pots are used, see that each is well drained, and half fill them with soil. Be most careful in affording water. Melons that have just set or are swelling their fruits, may be afforded some kind of fertiliser, spreading it over the soil, and adding a little fresh soil. Afford water when necessary, but keep from touching the collar of the plants. Shorten lateral growths to one leaf beyond the fruit. Seek to keep the main foliage clean and healthy by maintaining a moist atmosphere. Plants ripening fruits should be given no more water than is necessary to prevent them from flagging. They need a dry warm atmosphere, with a little ventilation constantly.

Cucumbers.—If stout, healthy plants be put out now in a house where the temperature on cold nights of 65° to 70° can be maintained, plant them on a ridge composed of half lumpy fresh turf, and half rotted short dung, well mixed together; some lime rubble may also be added; and there should be effective drainage beneath. Syringe the plants twice daily on bright days. These plants may be cultivated to yield Cucumbers till Christmas.

Winter Cucumber Plants.—Sow seeds of Telegraph, which is still the most reliable variety when true; when the seeds have germinated, keep the plants near to the glass, where they will become sturdy.

PLANTS UNDER GLASS.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Winter Carnations that have been for several weeks in their flowering-pots, may now be fed with an occasional dose of weak manure water. Except for the removal of a too prominent flower-bud and a portion of its stem down to the first side shoot, there should be no more stopping of those plants intended to flower before Christmas.

Cyclamens.—The old corms saved over for a second flowering should be potted up, using for this purpose a mixture of loam, sharp sand, leaf-mould, and some decayed manure. Pot firmly, and keep the top of the corm almost on a level with the surface. Shade lightly from bright sunshine.

Anthurium Scherzerianum.—Except for the production of an occasional spathe, the flowering season may now be considered to be over. Renewed root activity will soon be apparent, and these new points should be provided with a little fresh turfy loam and peat. If there is any sour soil on the surface, carefully pick it out before packing on the new soil. At least one-half the total bulk should consist of good loam, in which the plants succeed thoroughly, though there is a general tendency to ignore the liking these plants have for loam, and to use peat in excess. Considerable humidity should be maintained in the house, and frequent but light syringings of the surface soil afforded, these being helpful during warm weather.

Caladiums.—Those plants which are getting past their best should be gradually dried off. For this purpose they may, if more convenient, be removed from the stove to any house in which an intermediate temperature is maintained, and where they will not be far from the hot-water pipes, for they must not at any time get chilled.

Coleuses (Coleus).—The plants should be set out thinly, and exposed fully to the light, to perfect the colouring of the foliage. While growth continues to be made, close the house early in the afternoon, and afford copious syringings with clear soft water.

Chrysanthemums.—During the next few weeks the grower will be busy "taking" the buds. Except in the case of a few varieties that develop their flowers quickly, it will no longer be safe to reject any buds if the plants are intended for the production of big flowers. In this matter, the tabulated lists published in some catalogues will be found useful, if the grower uses judgment in regard to the variations likely to be produced by locality.

Fuchsias.—In many cases it is found more convenient to raise young plants yearly than to store the old plants over winter, and propagate from them in spring. August is the best month for striking cuttings, and a batch put in now in small pots of sandy soil will strike freely in a frame set on a spent hot-bed.

Pot-Vines.—An increase in the supply of water will now be necessary, as the plants will be resuming activity. Those which are showing flower-spikes may be afforded a little weak manure-water.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

APPOINTMENTS FOR THE ENSUING WEEK.

WEDNESDAY, Aug. 13	Wilts Horticultural Society, Show at Salisbury. Dudley Horticultural Society's Show (2 days). Bishop's Stortford Horticultural Society's Show.
THURSDAY, Aug. 14	Sheffield Floral and Horticultural Society. Exhibition. Taunton Deane Horticultural and Floral Society, Exhibition.

SALE FOR THE WEEK.

FRIDAY, August 15.—Orchids in large variety by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

Average Temperature for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —62 6.

Actual Temperatures:—

London.—*August* 6 (6 P.M.): Max. 68°; Min. 59°. *August* 7.—Fine, warm, cloudy.

Provinces.—*August* 6 (6 P.M.): Max. 63°, S.W. Counties; Min. 49°, Shetland.

The "Nature-Study" Exhibition.

It is pleasant to look backward and to see how rapidly the movement in favour of making children observe what is around them, has progressed during the past two years. At the beginning of the year 1900, we found the Duke of Devonshire saying that when once interest in the kind of teaching advocated became general, this might easily be carried out. On the twenty-third of last month the same statesman, in his capacity of President of the Board of Education, presided at the opening of a Nature-study Exhibition, and gave an account of what had happened in the matter since the time we have mentioned. Owing to the untiring efforts of the Agricultural Education Committee and Mr. Henry Hobhouse, "Nature-study" is to be taught in all elementary schools, the work of fitting existing teachers for their new labours, so keenly undertaken by many county councils, is to be properly supplemented by special training in the Government institutions devoted to the education of those who are to become schoolmasters or mistresses.

While thus indicating what has been done in recent times, we, especially in this journal, must not overlook the highly successful efforts made by the late Professor Henslow to interest and instruct the children of his parish school in the facts of natural history, efforts which attracted the attention of the Prince Consort, and bore fruit far beyond the limits of a country village in Suffolk. In our earlier volumes may be found full details as to the Professor's methods, which may be studied and copied with great advantage even now.

The recent advance of Nature-study has been due to public opinion, which has expressed itself pretty freely upon the subject, as well as possibly to a failure upon the part of those most interested in it to emphasise the letter as well as the spirit of their contentions. Anyone who has felt inclined or been invited to teach Nature-study has been free to take up anything, from poetry to bacteriology, or from meteorological readings to agricultural law, and under the useful little we have borrowed from America to proceed along the path of least resistance. This sort of thing, though it may have had its uses while ideas were taking root, and no doubt has given rise to many experiments, the results of which may be usefully adopted, could not go on for ever. One of the advantages of Nature-study is its vastness and variety, and by holding an exhibition where all who had the courage of their opinions could show their methods and results, it was thought that, at last, it could be determined what were the branches of Nature-study in its wide sense, and what the significance of it when it is narrowed down to the purely educational requirements of young children. Furthermore, an exhibition would go to determine how informal outdoor teaching or country-lore could be correlated with Nature-knowledge, object-lessons, and ordinary subjects of regular school hours.

Before passing on to the results to be looked for from the exhibition, it may be of interest to briefly consider what was shown in the conservatory and corridor of the Royal Botanic Society in the Regent's Park, who in a public spirited manner placed their Gardens at the disposal of the Nature-Study Association for a fortnight. All natural history, whether purely scientific or applied, as in the case of horticulture and agriculture, was considered to be Nature-study for the purposes of the exhibition; and while such extraneous matters as basket-making and woodwork were admitted, few examples of these were to be seen. Similarly, produce being hardly to be considered admissible to an educational exhibition, was not extensively represented, though an interesting exhibit was staged in this section in the shape of a selection of garden plants and their ancestors, arranged by Miss Weston Smith, a student at the practical gardening school belonging to the Gardens.

Several county councils were represented by collective exhibits showing their work as illustrated by agricultural and horticultural colleges, down through secondary schools with their active natural history societies, to elementary schools with flourishing school gardens and system of rambles. Many of the large school-boards had selected exhibits from their numerous schools. Public and large secondary schools for boys were chiefly represented by the work of the school field clubs and the efforts of the boys at home. St. Paul's, the Friends' school at Bootham, and Bedale's School, may be specially mentioned. Eton College sent an exhibit from the school museum, of which the chief feature was the local collection of neglected groups; and the Stepney Borough Museum, a case illustrating an Oak-tree, insects preserved on leaves and flowers carefully dried so as to keep their natural shape and colour, as well as a nest of living ants. Streatham High School, belonging to the Church Schools Company, gained a medal for a Nature-study Calendar; James Allen's Girls' School had varied the usual systematic botany with water cultures; the Clergy Orphan School exhibited the drawings and specimens of Mycetezoa, a slime fungus which they specially study; while Cambridge Training College and the Frœbel Institute were two establishments among a number which turned attention to aquaria and vivaria.

It may be considered as determined by the remarks made by the principal speakers at the conferences, that Nature-study not taken as a definite school subject, but out-of-doors with the teacher or at his or her suggestion, is the kind to be adopted in the future. The chief awards also in a great measure endorse this, and the correlation of the study with more ordinary school work, as for instance, drawing and brush-work, natural objects being chosen as models.

Necessarily there is a great mass of material which is not representative of the Nature-study thus outlined, and though a great proportion of it is excellent if looked upon as biology or school science, yet there is much method that is distinctly wrong, and more work that is labour lost, through what the gardener would call "Bad Marketing." What is the use, say, of the "Nature-study" which consists in copying a vile drawing of what is labelled a honey-bee, coloured a bright blue? or a diagram of a hen having the outline of its back made by a single straight stroke? Again, if one takes the trouble to collect the grasses of meadow and waste ground, why should they be arranged like the contents of a dust-bin? and after carefully setting a stag-beetle, is it sensible to give it "natural" surroundings with the aid of ghastly green crinkled paper? Lastly, in this connection, if children must press plants, cannot they be shown how to arrange them on the papers so that the thick parts do not all come in the middle of the page, and make the upper sheets of a pile take the form of a ridge-tile instead of being flat. When single leaves are preserved, with whatever purpose in view, they necessarily become somewhat formal when detached from the tree and divorced from their artistic connections. This formality should be recognised and encouraged by mounting them in rows upon the card, as it cannot be got rid of by any attemptedly decorative arrangement. There is also no necessity to suggest a scarcity of cardboard by greediness as to the number of leaves displayed; and it cannot be the intention, as might be surmised in some cases, to provide a puzzle, the children being set to fit in as many leaves as possible into a given space.

To return, however, to larger considerations, Nature-study is for town and country alike: it is to provide a part of all necessary education; it is not to be instruction; and it does not directly seek to afford information, but to encourage observation, enquiry, and the power of gaining knowledge from things themselves. If everyone were to confine his attention to books, the sum of human knowledge would not increase at all. The exhibition points to an ideal method of Nature-study which is luckily within our reach. It must be no set subject studied

Portion of Group of Plants arranged by Mr. F. W. Meyer for Messrs. R. Veitch & Sons, Exeter.

between four walls, and confined to particular hours, though many lessons may advantageously be imbued with it, and be based upon it. Teachers must be trained properly by instructors who are not one-sided or temporarily removed from a groove; and inspectors who really have a love of Nature should be employed to maintain the chosen point of view. Hitherto natural history has mostly been pursued for its own sake; possibly the time will come when even the naturalist will be considered worthy of his hire.

Sir JOHN COCKBURN, the Chairman of the Association, is to be congratulated upon adding another public success to those which he scored as Minister for Education and Agriculture, and as Premier in South Australia, as well as more recently in the Mother Country when Agent-General for his colony. Mr. J. C. MEDD has proved an indefatigable Secretary; of the members of the General Purposes Committee, Mr. R. HEDGER WALLACE is perhaps best known to our readers as an authority on Nature-study and economic botany; while the actual staging of the exhibits fell to the lot of Mr. H. M. CUNDALL, of the Victoria and Albert Museum at South Kensington, together with Mr. A. TAYLOR, H.M. Sub-Inspector of Schools.

M. EMILE DUCHESNE.—The Commercial Manager of the Horticole Coloniale, Ltd., of Brussels, has been appointed by the French Government a Chevalier of the Order of the Merite Agricole. M. DUCHESNE was sent on a mission to Central Africa by the Independent State of the Belgian Congo, under M. LUCIEN LINDEN'S special direction, and brought with him upon his return from the French and Belgian Congo several new plants which have been put into commerce by the Horticole Coloniale, and which have met with much appreciation. These include several Hæmanthus, Ficus Luciani, Asparagus Duchesnei, &c.

MR. W. J. SIMPSON, whose successful cultivation of Sweet Peas and other plants was remarked upon in these pages on Jan. 11, p. 27, will shortly relinquish his situation at The Grange Gardens, Surrey, to take charge of the extensive gardens at Wemyss Castle, Fifeshire, N.B., the residence of R. G. ERSKINE WEMYSS, Esq.

THE CRYSTAL PALACE FRUIT SHOW.—We have received a copy of the schedule of prizes to be offered by the Royal Horticultural Society at the forthcoming exhibition of fruit, on September 18 to 22. With few modifications, the sections and classes are similar to those of last year; but there are three additional classes for British fruits preserved in bottles, and there will be a practical demonstration of fruit-bottling by Mr. FOWLER. As the exhibition will be held much earlier than last year, it is hoped there will be forthcoming a better representation of the softer hardy fruits.

THE CASSAVA IN JAMAICA.—In a recent *bulletin* of the botanical department, Jamaica, we read a report on Cassava, by Mr. ROBERT THOMSON to the Colonial Secretary. As the results of his experiments with the plant, Mr. THOMSON reports that Cassava is easily cultivated and drought resisting, and that it flourishes under a wide range of climatic conditions under congenial conditions of soil. Analyses show that the material contains a larger amount of non-nitrogenous extractive matter than is found in any other crop. This matter is composed largely of starch, and a considerable quantity of sugar is included. Cassava, therefore, presents marked characteristics of both Potatos and Sugar-Beets, but contains very much more total food because of its greater solidity and smaller proportion of water. For manufacturing purposes there are two products for which this crop offers superior material, namely starch and glucose. The report before us goes much further, and into details that space will not permit us to quote here. Mr. THOMSON maintains the superiority of Cassava as a human food, as fattening for cattle, and as furnishing starch and sugar for manufacturing purposes. Not only are the actual proportions of these products greater in Cassava than in Potatos and other crops, but they are to be produced at less expense. "Cassava cultivation in the Island, under systematic cultivation, is capable of ranking next to Sugar and Bananas in a few years time, and from a remunerative point of view it is likely to surpass both." The author of the report advocates large areas of Sugar-cane, Coffee, Cocoa, Bananas (and Cassava), rather than a hundred varieties of insignificant minor products. The crops increase in value in proportion with the size of the area under cultivation.

DROUGHT IN AUSTRALIA.—Recent advices from our new South African colonies lead us to infer that an enormous number of applications have already been made for land allotments in the Orange River Colony and the Transvaal, these coming from Australians of all classes—principally agriculturists. Much of Australia is subject to withering droughts; in the recently annexed portion of South Africa the difficulty is to properly dispose of the water supply. The long protracted season of drought in Queensland has been productive of great inconvenience to stock-keepers and market-growers; town people have for long been paying ruinous prices for the necessities of life. From a private letter we learn that vegetables have reached a very high price; meat has increased in value to four times its usual figure, cattle food being now higher in price than it has been for many years; and, says the writer of the above-noted letter, "we have ceased to raise and feed chickens—using them up for ourselves as fast as we can." Of course, all other articles of food are "in sympathy;" sugar, tea, butter being now things of consequence at the breakfast-table; and so doubtless all this has something to do with the desire to obtain land in the new colonies by the sons of the elder ones whose agricultural ardour is dissipated by the long persistency of sunheat.

TWO FARMER-PRINCES.—The KAISER seems bent on turning his sons to good account by assigning them from early days to different departments in the State. Prince AUGUST and Prince OSCAR are to study agriculture, in order to be able, later on, to enter practically into the agrarian question. The way in which the Imperial princes are made to take up this subject should certainly lead them to a thoroughly practical knowledge. A farm has been taken for them, and they and six of their schoolfellows have not only to work this farm—under the supervision and advice of experts, of course—but also to make it pay. There is pasture land for their two cows; there are a few acres of grain, and a good many acres of vegetables and Potatos; there are chickens and ducks; and the farm produce is sent to the Imperial palace, and the father of the two youthful farmers pays for it at the market prices; and if the milk is poor, or the grain inferior, or the eggs and fowls more ancient than is desirable, or the vegetables second-rate, then the farmers' Imperial customer is not at all slow in complaining, and in lowering the prices according to the value of the goods. If the princes, after a spell of work in the sweat of their brows, wish for a cup of coffee and some bread-and-butter, then there is the little white kitchen under the thatched roof of the cottage attached to their farm; and they may then go and make coffee, and drink it out of the nice thick earthenware cups that are kept in the old-fashioned cupboard of their whitewashed little sitting-room at the farm. More hard-working sons of an Emperor and an Empire, I have been told, do not exist. *Cited in the "Review of Reviews" from the "Young Woman."*

DESTRUCTION OF PESTS.—There has just been issued from the Agricultural Department at Ottawa a valuable pamphlet whose title runs thus:—"Agricultural College, Bulletin No. 122. Spray Calendar—directions for treatment of insect pests and plant diseases. By W. Lockhead, Professor of Biology and Geology, Orleans Agricultural College, Guelph. 1. Thorough intelligent spraying pays; 2. Spraying is an insurance; 3. Clear up refuse, gather up fallen leaves and fruit in fall and burn them; 4. Protect birds and beneficial insects. Published by the Ontario Department of Agriculture, Toronto." There are a large number of recipes for "extirpation," with instructions for the mixing of ingredients, and notes as to how and when to apply them to the affected trees, vegetables, &c. Altogether it is a little work of great value to the market gardener and private grower. Such a work must spare the "Inquiry Department" at Ottawa much work, and save much time just when a loss would be of importance. For such a work a large sale might be guaranteed in this country.

THE R.H.S. COMMITTEES' PROPOSED CRICKET MATCH.—The proposal to have a match of cricket shortly between the Floral and Fruit Committees of the Royal Horticultural Society is being dealt with seriously. We learn that the captain of the Floral team will be the Rev. Mr. KITSON, the Assistant Secretary; and Mr. W. POUPART will captain the Fruit members. It is hoped that consent will be given to the playing of the match on the beautiful ground in Gunnersbury Park, and September 3 (Wednesday) has been selected by special desire as the date. It is also specially desired that members of both Committees, whether they can play cricket or not, will offer to do so. The occasion will be a very social one, and all should do their best to make it an enjoyable gathering. The refreshment department will be in good hands, and the presence of ladies will be welcome.

"BUSINESS ILLUSTRATED" is a new periodical intended to foster the interests of business, and of business men. It consists mainly of a series of articles on the factories and business establishments of sundry well-known firms. The most interesting article for our readers is that entitled "Under Glass: The Story of the Modern Greenhouse," which is a fully illustrated account of the Midland Horticultural Works carried on by Messrs. MESSENGER & Co. at Loughborough. The periodical is well got up, profusely illustrated, and the articles are agreeably written. Presuming that our new contemporary will be desirous of treating all the firms alike, it is evident that the field before him is almost inexhaustible. The magazine is published by STRAKER BROTHERS, Bishopsgate Without, E.C.

FLOWERS IN SEASON.—Mr. A. W. WADE, of Colchester, sends us very fine examples of *Lilium Browni*, with large trumpet-shaped white flowers with broad stripes of brownish-purple, and with powerful fragrance. We do not remember to have seen finer blooms. With them came specimens of *L. testaceum* (excelsum of some gardens), of deeper colour than usual. They are grown, says Mr. WADE, by the riverside, with their roots almost in the water.

—— *Plagianthus Lyalli.*—Mr. S. EDWARDS sends a spray of this beautiful New Zealand shrub, figured in our columns on August 25, 1888, but not so often met with as its merits would warrant. When we say that the specimen came from a garden in Westmoreland, there need be no fear as to its hardihood. The pure white mallow-like flowers are produced in great abundance.

—— Mr. AMOS PERRY, of Winchmore Hill, sends a beautiful pink-flowered Tamarix in *T. kashgarica*, whose flowers will not expand till the end of September, and flowering shoots of *T. æstivalis hispida*, taken from a plant in full bloom. The flowers are of a light pink tint, enhanced by the bluish foliage.

"THE BOTANICAL MAGAZINE."—The August number contains coloured plates and botanical descriptions of the following plants :—

Echium Wildpretii, Pearson, t. 7847.—A tall, softly pilose biennial, with simple, unbranched stem, and sessile, linear leaves ; the flowers are numerous, in long clusters towards the end of the branches, and of a rose-pink colour. A native of the Canary Isles. Flowered at Kew.

Decaisnea Fargesii, Franchet, t. 7848.—A very remarkable Berberid of shrubby habit, large, impari-pinnate leaves, and decurved racemes of green, bell-shaped flowers, each about 1¼ in. long, with lanceolate segments and a cup-shaped tube. The species is a native of the mountains of Western China, and differs from its Himalayan congener in its shorter, dull blue fruits, which are reputed to be edible. Flowered at Kew.

Heterotoma lobelioides, Zuccarini, t. 7849.—A Mexican Lobeliad with the aspect of an Impatiens, but widely different structurally. Its distinctive character consists in the corolla being produced downwards into a curved, deep red horn or spur, with the back of which the two lower segments of the calyx are inseparate for most of their length ; the limb of the corolla is yellow and deflexed, in shape like the ray floret of a Composite. Each flower is about 2 inches long. Cambridge Botanic Garden.

Fritillaria askabadensis, Micheli, t. 7850.—See *Gardeners' Chronicle*, 1902, i., 237, f. 238.

Gelsemium sempervirens, Aiton, t. 7851.—A greenhouse climber of the Logania family, with opposite sub-sessile, lanceolate, acuminate, green leaves, and axillary yellow flowers, each about 1¾ in. long, with a broad funnel-shaped tube, and a small, spreading limb with five ovate segments. It is the Carolina Jasmine of the Southern United States, and although introduced by Tradescant, and cultivated and figured by Parkinson, is little known in gardens. It has sedative and poisonous qualities. Kew.

"THE HOMELAND HANDBOOKS."—Vol. xxi. of this well-known series is devoted to the city of St. Alban, its Abbey and its surroundings, by CHARLES H. ASHDOWN. It is well written, giving just the kind of information best suited for the visitor. These handbooks certainly attain the happy medium between the dryness of the ordinary guide-book and the foolish writing too often found in lighter works wherein mention is made of local topics. The historical city furnishes interesting material for description, and the illustrations herein contained do it no less than justice. There is a good map, and a welcome lack of purely local information about public institutions in the neighbourhood, for which readers are referred to the local directory and to the newspaper. The publishers of this series of guides are the Homeland Association, 24, Bride Lane, Fleet Street; and the volume before us is also obtainable from GIBBS & BAMFORTH, Market Place, St. Albans.

"THE AGRICULTURAL NEWS."—The newly-established "Review" of the Imperial Department of Agriculture for the West Indies, always good, improves as it goes on. It supplies to the planter just the kind of information he requires, and emphasises the need of brain-culture as a preliminary to practical work. Attempts are now being made to secure a market in this country for the surplus Sweet Potatos. It is an extremely difficult matter to persuade people to divest themselves of prejudice in cases of this kind, and of course, the dealers do not care to be burdened with what will not take the fancy of the public. We are therefore the more gratified to find that the first shipments from Barbados have proved satisfactory. Cheap wholesome food is a great desideratum in our European cities, and it seems as if the West India Islands can do much to furnish a supply at rates profitable to the growers and advantageous to the consumer. Everyone will wish it may be so. In Dominica the manufacture of citrate of lime from lime juice (Citrus) is being attempted with good prospects of success. Arbor-day was observed on June 26 in St. Vincent, and Tobago Palms and other trees being planted, and many more will be set out on August 9, the utility and significance of the procedures being duly explained.

A PHARMACOLOGICAL SOCIETY is (says the *Pharmaceutical Journal*) being organised in London for the purpose of studying the chemical and therapeutic properties of plants and other medicinal agents. According to the *British Medical Journal*, the Society of Apothecaries has consented that the new Society shall meet at its Hall at Blackfriars, and the members of the Court of Assistants and the livery of the Society will give it their support. The Honorary Treasurer of the Society will be Dr. BROWN, Master of the Society of Apothecaries, and the first President will be Sir W. T. THISELTON-DYER, K.C.M.G., F.R.S., Director of the Royal Gardens, Kew. The Society already numbers about fifty members, and it is believed that the membership will shortly increase to about two hundred or more. It is stated that one object of the Society will be to examine the various plants which are from time to time sent to this country from distant colonies and dependencies, and it is intended that the committee appointed to make those inquiries shall comprise botanists and chemists, as well as persons who are able to deal clinically with such matters.

ENQUIRY.

MESSRS. G. B. & Co. would be glad if some reader of the *Gardeners' Chronicle* would kindly inform them of the properties of a variety of Grape grown in South Africa under the name of Galaaport, and if this is a synonym.

A ROCK AND WATER-GARDEN UNDER CANVAS.

[SEE SUPPLEMENTARY ILLUSTRATION.]

THE spacious tent devoted to flowers at the "Bath and West" Agricultural Society's meetings had both ends boarded up, and thus greater height was gained than is usually available in a flower show tent. This year the Society's show was held at Plymouth, lasting from May 27 to May 31. In the *Gardeners' Chronicle* of June 7, p. 383, we gave an account of the horticultural department of this show, which was so ably managed by the Rev. A. T. Boscawen.

We briefly mentioned in our report that one end of the huge tent was occupied by Messrs. Robert Veitch & Son, of Exeter, whose exhibit took the form of an artistic rock-garden. We are now able to present our readers with a Supplementary Illustration showing a portion of this rock-garden. Our engraving was prepared from a photograph taken by Messrs. Veitch's landscape gardener, Mr. F. W. Meyer, who was responsible for the arrangement. Being about 25 feet high, 20 feet deep, and 50 feet long, the group was an imposing one, and being enlivened with running water, and plants most naturally grouped, the effect was very pleasing.

Our illustration shows a portion of the "rocks," with their background of Rhododendrons and Japanese Maples. The cave seen on the left in the picture formed a central portion; its overhanging ledges supported numerous Roses of the Rambler type, and various Cytisus, which, with their flowering branches drooping gracefully over the rocks, gave a very light and artistic effect, heightened by a stream of water descending in front of the cave, and trickling into a pond filled with the choicest Water-Lilies. In our illustration only a portion of the margin of the pond is visible, with its fringe of water-loving plants, including Rodgersia podophylla, numerous Iris, Podophyllum Emodi, Saxifraga peltata, and masses of Fortin's giant variety of Lily-of-the-Valley.

Conspicuous in the enclosed illustration is a group of Eremurus robustus and E. himalaicus, which, with their tall spikes of bloom, gave an excellent effect, without in any way hiding or interfering with the artistic background beyond. Among the plants shown in the picture are various Metrosideros, Edwardsia grandiflora, Hydrangea stellata, Cocos australis, Lotus peliorhyncus, &c.

HERBACEOUS BORDER.

VERBASCUM OLYMPICUM.

FOR several years I have grown this perennial, with more or less success ; but not until this season has it given me such satisfaction and pleasure, nor shown its true character and stateliness. That this Mullein has a noble aspect must be admitted, and is admitted by all who see it in its grandeur. This variety attains to the height of 8 feet, and is, in several instances, 4 feet through. Surrounding the main stem or leading shoot are many shorter ones, the whole of them being literally covered with yellow flowers—surely a desirable plant for large herbaceous borders ; or it may be planted in groups in suitable positions in the fronts of shrubberies. The herbaceous borders here are of great length, varying in width from 6 to 8 feet, and at the back of these the Verbascums are planted, forming a notable feature in the gardens.

Where an easily-grown plant is required to give colour and effect in the months of June

and July, this plant would be appreciated. It may be added that the showy and beautiful Delphiniums are fitting companions for planting alternately with this, the best of all the Verbascums. *J. Gardner, Elsham Hall Gardens, Lincoln.*

CORONATION FLOWER-BEDS.

At almost all public parks and gardens, and in many private ones also, where it is still the practice to have a little carpet-bedding, there has been worked into the design this season some reference or other to the King and Queen. In municipal parks the favourite devices representing the arms of the borough, and the initials of the Mayor for the year, have given place to the initials of their Majesties, or to words wishing them health and happiness.

At Battersea Park some bedding of this kind has an excellent effect, being one of the best illustrations of the kind we have seen. Near to the Albert Bridge Gate there is a circular sunk flower-garden, known as the Bull Ring, the sloping sides of which is wholly covered with carpet-bedding. The lettering is as big as the two-feet or so of space will allow, and it is "God save our King and Queen, Long may they Live." The level area of the ring contains a few flower-beds in the grass, and a circular one immediately in the centre is the representation of a crown, after the manner of that shown in fig. 33; but instead of the motto are the words "Edward VII.." and "Dei Gratia," where the figures 1902 are seen in the figure. A number of varieties of Alternanthera have been used, and in addition almost every plant associated with this style of bedding. The work has been executed in the most skilful manner, and the plants are kept pinched regularly. The whole design is exceedingly bright, and quite a study in colour and outline. Very near to this ring is another circular bed, representing the Prince of Wales's feathers, and this also is very effective.

The bed shown in our illustration (fig. 33) is in another part of the park, in the sub-tropical garden. It is a circular bed, banked up at the back so as to throw the design into view from the path. The outline of the Crown is of Kleinia repens, and the gold band of Alternanthera Kingii. The fleur-de-lis is outlined with Kleinia repens, and filled in with Alternanthera amabilis and Sedum carneum. The raised centre is of Echeveria on edge, filled in with Alternanthera amabilis, the centre line of jewels being of Cotyledon Pachyphytum [Pachyphytum bracteosum]. The crimson portion is of Alternanthera versicolor grandis. The words "Dieu et mon Droit" are outlined with Alternanthera aurea on a ground of Antennaria tomentosa, with a foundation of Alternanthera Kingii. The letters "E. R." and figures "1902" are of Sedum carneum and Alternanthera versicolor grandis, with a groundwork of Sedum glaucum. A band of Alternanthera paronychioides surrounds the whole design just inside the edging of Echeveria secunda glauca.

The bed shown in the photograph as immediately behind the carpet-bed is planted with a rich purple-leaved Ricinus, and variegated Maize. Being in the sub-tropical garden, the design is in the midst of a series of beds showing great variation in the planting. The scene covered by the photograph includes beds of Bamboos, specimen Palms, and a fine bed of Eucalyptus and Fuchsias, standing on a groundwork of mixed flowers. Since Mr. Coppin's promotion, the charge of Battersea Park has been in the hands of Mr. J. Rogers.

FIG. 33.—ONE OF THE CORONATION BEDS IN BATTERSEA PARK.

HOME CORRESPONDENCE.

MOTH UPON JUNIPERUS COMMUNIS.—I have for some years grown in my garden the fastigiate form of Juniperus communis, but the plants often almost completely lose their leaves and become so bare and unsightly that I have had to remove them and plant fresh ones; and lately I was about to take them up and banish them altogether. My gardener had consulted growers who said they had experienced the same decay of this shrub, but did not know the cause. The branches and leaves become matted together from top to bottom by a compact whitish web, which cover leaves and branches to the ultimate destruction of both. A few days ago I examined one of these shrubs very carefully, and my lens has revealed the cause of destruction. The web is produced by a small green caterpillar from five to six-sixteenths of an inch in length, which turns first into a brown chrysalis and ultimately into a small longitudinally-striped moth, a specimen of which I enclose. The remedy naturally lies in preventing the eggs from developing into the caterpillar, or removing the caterpillar before it commences to devour the leaves by syringing or brushing. I am not aware whether the destruction of the Juniper by this moth is very general, but as it does not appear to be universally known that it is caused by a moth, I shall be glad if you could ascertain the name of the depredator, which must be well known to entomologists. *Frederick Townsend, F.L.S., Honington Hall, Shipston-on-Stour.* The moth is Ypsolophus (macrochila) marginellus, Fab., and belongs to the extensive family Gelechiadæ of the Tineina group. It is said to occur in Surrey, Wilts, Norfolk, Cambridgeshire, Lancashire, and Northumberland, but is local. It is recorded also from Central Europe and North Asia. It is partial to cultivated Junipers, and has been known to seriously disfigure and injure them, as in your

own case. But the insect is not recognised as a pest in the leading works on forestry, and arboriculturists both at home and abroad seem to have overlooked it. There is one other member of the genus (Y. juniperellus) which also feeds upon Juniper, and like marginellus, the larvæ live in a web and feed upon the parenchyma of the leaves. This species is, however, much more local, and is recorded only from Scotland. By removing the webs and dislodging the larvæ, you should be able to check their ravages. You might also try the effect of Paris Green at the rate of about 3 oz. to 20 gallons of water; but you should first test it, as it is not known what proportions of Paris Green the Juniper will admit without suffering therefrom. Ed.]

WILD-PLANT PLUNDERERS.—I fear I may have angered a local florist some time since when, seeing in his shop boxes of wild Primroses plundered from woods somewhere, I told him that he was *particeps criminis* with the wild-plant thieves. It is not merely in this wholesale destruction of Primroses that harm is done to our sylvan scenery. Hardy Ferns are plundered from their shady haunts in woods wholesale, brought into our towns, and to London especially, almost rootless, and sold to people who in buying little realise that they are dealing with stolen property. How glad one may well be to find that both the Ferns and the Primroses seldom grow! Were there no purchasers there would be few plunderers. Would that the law relating to this form of plant traffic was made more stringent! Cannot the Royal Horticultural Society, in alliance with the Selborne Society, be induced to exercise its powerful influence with the Government to adopt such stringent measures against wild-plant depredation as shall stop this traffic absolutely? *A. D.*

PEAS TELEPHONE AND TELEGRAPH.—With so many new Marrowfat Peas, old kinds are slowly giving place to modern introductions. It is, however, pleasant to be able to make comparisons of the newer sorts with those of old time. I had an excellent opportunity quite recently of noting the great value of the two Peas named above in Erlestoke Park Gardens, Wilts, which are now under the charge of Mr. W. A. Cook, late of Compton Bassett. These Peas, in broad lines of some 100 feet or more, were marvels of growth and pod-production, the soil, though light and sandy, carrying these crops exceedingly well, aided by a mulch of half-rotted manure. The haulms had reached to quite 6 feet, and were of proportionate breadth. I noted Mr. Cook practices the system of opening broad drills for sowing, a practice favoured by some and condemned by others on economic grounds; but no one could fail to admire the great wealth of crop awaiting use at the time of my visit. Telegraph, as grown by Mr. Cook, is a selection of his own, probably dating back to its introduction. Then it developed a variable character in its seed, probably a means allowing of new titles being given to other selections. *W. S.*

A STRONG-GROWING MUSK.—I send you a spray of Mimulus moschatus Sellensii, hyb. robusta grandiflora [!], a new variety of three years' growth. It is of very vigorous "Fir-tree-like" growth, and the flowers are much larger than those of the old variety. It stands rough weather exceedingly well. *M. Sellens, Coventry.* [A very strong-growing variety. Ed.]

MERCURY.—With further reference to the subject of Spinach, as referred to by W. Miller on p. 431 of the last volume, being myself a Lincolnshire man—and proud of the fact, I should like to confirm his statement as to the extensive use of Chenopodium bonus Henricus as a pot-herb. This plant was cultivated in my grandfather's garden at Fulbeck, and was known to us as Mercury (to the labourers as Marcry), the name Spinach being reserved for Spinacia oleracea. We always esteemed Mercury as high-class "greens." Here, near San Francisco, Spinacia oleracea is grown by our Italian and Chinese truck-gardeners, and is sold in the towns for greens, but it is so often attacked by a small grub, which finds its way into the hollow stalk, and is not removed by washing, that I have given up using it, much prefering the exceedingly tender and sweet foliage of the Sugar-beet, which makes the most delicious "mess of greens" known to me. *Joseph Burtt Davy, Berkeley, Calif., U.S.A.* [There is, of course, no doubt as to the use of Chenopodium as Spinach. The point was, that a specimen of the common Water-Dock, Rumex hydrolapathum, was sent us as Spinach. Ed.]

THE RAGGED ROBIN.—Whilst "botanising" in mid-Cheshire in the middle of July, I found a pure white form of the "Ragged Robin." The plant was growing in the usual haunt of the species, a shady bog, amongst Equisetum limosum, and was quite 2½ feet in height, and 2 feet through. Completely covered as it was with flowers of unusual size (the smallest being 1¼ inch across), the plant was a delight to behold, contrasted with fine plants bearing flowers of the normal bright red colour. That was the first occasion on which I have seen a white Lychnis Flos-cuculi, although I have "botanised" considerably in both northern and southern counties. Neither is a white variety mentioned in Benth. and Hook. *British Flora*, or in Nicholson's *Dictionary*, though I see that Messrs. Barr & Sons offer a double white-flowered variety. Is my "find" unusual, or not? *E. H., Altrincham.*

HYBRID CRINUMS, ETC.—I have splendid hybrids of this fine genus in flower, and expect soon to see many more. There are Crinum Moorei × longifolium; C. Moorei × MacOwan; Moorei × pedunculatum; Moorei × Powelli; capense album × yenense; capense album × erubescens; capense × variabile; yenense, a good species, not merely a latifolium, with C. erubescens; crosses of pratense and lineare, and other hybrids. I have already booked twenty-nine very splendid new Crinums, and many others from the last two years are expected later on. One of my finest Crinums is named Alexandræ, in honour of your Queen; it has flowers like those of Lilium Alexandræ. The red C. × Belladonna, C. × Polyanthus, C. Tussæ, and C. × Malbranchi, are also splendid. Many of these hybrids have no style, or it is very short and deep in the tube; others have a very long style, longer than the segments. All are very fine, and much more free-flowering than the types I cultivate. *Ch. Sprenger.*

ÆSCULUS CALIFORNICA.—In the grounds of Pinhay, Lyme Regis, there is a good specimen of this tree in full bloom. The terminal flower-spikes standing well above the leaves makes it an attractive object. The tree under notice is a low standard, of branching habit, and a variety not often met with. There are many noteworthy and interesting shrubs, &c., at this naturally pretty place. Here, also, growing outside on the wall of a plant-house in the garden, may be seen a luxuriant Lapageria showing plenty of buds; while in the Peach-house the trees were carrying heavy crops of fruit. *Paul T. More.*

STRAWBERRY MONARCH, LEADER, ETC.—I have grown Monarch here during the past two years, and find it an excellent cropper. The fruits are very large, and of fine colour, and are ready to gather at the same time as Royal Sovereign, but they are greatly inferior to Royal Sovereign in flavour. Monarch grows even more vigorously than Royal Sovereign. Each of these varieties is best planted 30 inches apart each way. Gunton Park and Veitch's Perfection succeeded well here last year, and the flavour of each was excellent. The late frosts this year while the plants were in bloom totally spoiled the crop. Last year Leader was the first to show the effects of drought and red-spider, though heavily mulched for some time prior to the plants coming into bloom. The crop last year was enormous, and it was almost as great this year. As grown here, Leader is of third rate quality, and a poor grower. At Down Hall, Harlow, on July 31, I saw Royal Sovereign bearing a very good crop on a north border fully 40 yar long. This variety seems to be at home wh planted on a south border, north border, or the open garden anywhere in this part Essex. *A. Jefferies, Moor Hall Gardens, Harlo*

—— Has Mr. Wadds got the true variety Monarch? He describes it as being a "ba traveller and too soft." Here on heavy so it is very firm in the flesh, with a fine polish surface on the fruits. *T. H. Slade, Poltimo Park Gardens, Exeter.*

PEACH-NECTARINE.—Mr. H. S. River passed round the table at the meeting of th Fruit Committee at the Drill Hall on the 22n ult. a small fruit nearly ripe that was three fourths Peach and one-fourth Nectarine. Th fruit was but a small one, and probably owe its diminutive form to its abnormal character Can any plant physiologist tell us as to wha changes take place in the flesh of a fruit whe on a Peach a portion is Nectarine, and i coated with a smooth skin? Did the sport, i such term be applicable in relation to th superb kinds of fruits under notice, begi with the Peach, the downy fruits, or with th Nectarine, the smooth fruits? Does th Peach, if that be the original, emanate fro the Almond, which though never ripenin with us in the sense that these fruits do, ye has downy skin? Possibly this topic ha been dilated upon by some writers o scientists. If not, it merits attention. *A. D.*

THOSE SEVEN SHILLINGS.—The munificent sum of seven shillings (84 pennies), given by the members and friends of the National Chrysanthemum Society to the funds of the Gardeners' Benevolent the other day at Paddockhurst, certainly does merit publicity. One naturally wonders what the Treasurer to that noble institution will do with it. What a pity we were not informed whether the amount was made up in silver or in copper. Certainly the sum of 84 pennies was a big gift from 100 persons, and showed that both warm hearts and a love of giving are not yet dead human characteristics. How our friend Mr. Wynne, the esteemed Secretary to the Gardeners' Orphan Fund, must envy his brother secretary Mr. Ingram, this splendid windfall of 7*s.*, and how far will it go towards helping some poor broken-down old gardener to a much needed old age pension. *A. D.*

THE SEASON.—During July the temperature at night fell to 34°, while for about half the month the night temperature ranged from 30° to 40°. The weather this summer has been very unfavourable for growing crops. French Beans and Vegetable-Marrows make very little progress. Tomatos under glass ripen very slowly, while I fear the outdoor crop of these fruits will be a poor one. Peas have been the most satisfactory among vegetables, having thus far yielded abundantly, the weather having been favourable for the application of artificial manures. The summer-bedding plants have made little growth, fibrous-rooted Begonias are the most satisfactory. Dahlias that were strong plants when put out have done well, while Cannas have scarcely grown. Among annuals, Clarkias, Larkspurs, and Stocks, are specially good, also Sweet Peas, but Asters do not promise such a fine display as last season. A warm and fine August and September may improve things, for though there is "no bad hay for the calves," it would save the potatos and the corn. *T. H. Slade, Poltimore Park Gardens, Exeter.*

PARTHENOGENESIS.—In *Knowledge* for Aug., p. 183, it is stated that "Parthenogenesis has been discovered by Mr. J. B. Overton in Thalictrum purpurascens. . . . He determined that in this plant fertilisation is not necessary to embryo-development, or to endosperm-development, that embryos were produced parthenogenetically under all conditions, and that the development of the embryo in parthenogenetic material is the same as in normal material." If this can be established, it would seem to mean that ovules, which are

developed either on the margins or midrib, or blade of the carpels, may be considered as buds which usually develop in the axillæ of leaves, or as in the Tomato, in the axillæ of the leaflets. The function of fertilisation may be to ensure variation in different directions, to enable the progeny to adapt itself to varying conditions of climate, soil, competition, &c. In the Bryophyllum calycinum we have an instance of buds developing on the margins of the leaf; and in that phenomenal plant, Begonia phyllomaniaca, we have an instance of all the hairs which thickly stud the bark developing leaf-buds. *E. Bonavia, M.D., August* 4, 1902.

THE PROPOSED VEGETABLE EXHIBITION AT THE DRILL HALL.—There seems reason to hope that a good representation of British grown vegetables may be seen at the Drill Hall in the autumn of next year after all. I have received from the Council of the Royal Horticultural Society, through its esteemed Secretary, the Rev. W. Wilks, M.A., a letter in reply to a further one of mine to them, in which they express entire willingness to place so much of the Drill Hall as may be possible at disposal for a vegetable exhibition; and although nothing yet is settled, no doubt a date in the autumn of next year would be ultimately fixed. Of course, the offer of prizes, and the conditions annexed to them, as also the nature of the classes, would have to be subject to the Council's approval. These matters must, however, be the subject of full consideration. The Council thought we wanted a huge exhibition; all we ask for is a fairly representative one. *A. Dean.*

—— In my opinion, high-class vegetable culture is the most important of all branches of horticulture, and yet it undoubtedly receives the least encouragement. It is not altogether to be wondered at that so few of our young men at the present day can be found to take any real interest in kitchen gardening, when it receives such scant recognition at the hands of those who are in a position to place it on a level at least with other departments of gardening, and I certainly hope that ere long the Royal Horticultural Society will see its way to hold an exhibition annually. *E. Beckett.*

NATIVE CEDARS OF LEBANON.—In the *Pinetum Britannicum*, p. 276, a table is given showing the number of Cedars of Lebanon growing on the mountain as stated by various travellers from the year 1487 to 1864. In a little book published by the Religious Tract Society, 56, Paternoster Row, London, entitled *The Trees and Plants mentioned in the Bible*, by W. H. Groser, the following passage occurs at p. 58—"Bishop Arculf, one of the early travellers in Palestine (A.D. 700), mentions a Fir (Pine?) wood covering a low hill some three miles north of Hebron." He suggestively adds that the timber was carried to Jerusalem for fuel. Such statements account for the disappearance of many a grove and forest of olden time. The same traveller says, the Sea of Tiberias was "surrounded with thick woods." The title of Bishop Arculf's work is not given. Is anything known of his writings? It would be interesting to see what he said of the Cedars 780 years before Le Huen wrote of them. *C. Palmer.*

GILLIFLOWERS AND GARIOPHILATI (see p. 86).—Assuming that Gilliflower, according to Skeat, is a corruption of Girofléé, and that Gariophilati is a phonetic spelling of Caryophyllata, these two names are identical in their derivation and sense—"Clove-scented," both being coined, one as a French, the other as a Latin passive participle from Caryophyllus = Girofle = Clove. Yet, as Professor Henslow observes on p. 86, Caryophyllata is never found in the old herbalists referred to any of those flowers now called Gilliflowers, nor to any plant except a Geum. The scholarly Clusius, as usual, is our best guide, and he distinguishes Caryophyllus, his generic name for the Pink and Carnation tribe, from Caryophyllata, his generic name for "Geum of Pliny," several species of which he figures and describes. The name was given, Clusius says, to the type of the genus (Geum urbanum, the Wood Avens), which he calls Caryophyllata montana, because its roots have the aroma of Cloves, which is absent, as he says, from others of the genus. As a generic name, Caryophyllata was retained by herbalists and botanists quite to the end of the eighteenth century, being found in *Index Kewensis* as an obsolete genus of Tournefort containing fifteen species, all of them now referred to Geum. It

FIG. 34.—THE NEW HARDY ASTILBE CHINENSIS VAR. DAVIDII: FLOWERS ROSY-LILAC; HEIGHT ABOUT 3 FEET.

Awarded a First-class Certificate at the R.H.S. Meeting on Tuesday last. (See pp. 95, 105.)

may be observed that Geum urbanum (Caryophyllata) was a very important plant with the old herbalists, not only for its great medicinal virtues, but for other valuable qualities, especially the power of keeping the Devil out of a house which contained a plant of it; hence probably came the old English name of Herb Bennet (*benedicta* = blessed); and Clusius mentions French and German popular names of the species equivalent to this in meaning. In conclusion, I have tried in vain to recognise any taste or smell of Cloves in the root of Geum urbanum, either fresh or dried, raw or roasted. Pliny says that Geum has roots "bene olentes." *C. Wolley-Dod, Edge Hall, Malpas.*

GARDEN MARKET PRICES. — *Primâ facie*, one cannot but sympathise in some degree with those of your correspondents who give their experience on p. 84 of the low prices realised for certain goods. There are, however, always two sides to every question of this kind. It has to be taken for granted that the quality was of the best. Looking first, however, at the consignment of flowers sent by "X. Y. Z." to Covent Garden, it would appear the sender is but a casual one. Now in the month of July all the leading markets are loaded with such every-day flowers as those cited, and if day by day supplies of the same goods are to hand from those who send regularly to certain salesmen, it does but follow that these are entitled to first consideration. Doubtless "X. Y. Z." would be among the first to concede this. In these circumstances, therefore, such everyday goods as those named are frequently only disposed of as a job lot, after the market is closed for the day; and if these were not so disposed of, they would, as is the case with much that is left unsold, find their way into the refuse-carts. This may seem very hard, but in July such flowers will not keep in good condition long, even when well prepared by the senders. From the second week in July there is ever a great falling off in purchasers, so many people having left town, and the prices obtained by the regular men are frequently nearly ruinous. In these circumstances, the everyday supplies of outdoor flowers, that throng every corner of the markets, are thrown largely upon the street sellers of flowers, the shopkeepers requiring fewer each day. It is surprising how greatly modified is one's former discontent concerning prices by a few visits to the larger market centres. It is within the knowledge of the writer that occasional consignments of choice flowers are carried about the market often in the vain hope of getting a salesman to accept them. To attempt to blame the salesman may appear feasible enough to strangers at a distance, and with no knowledge of the circumstances; yet it is often quite as absurd to blame these men as it is of thinking of attaching the smallest blame to such a journal as the *Gardeners' Chronicle!* But something or someone must be to blame, and in my mind there is in these matters great blame attaching to the senders of such goods, and in particular those who, having only small supplies, rush them unthinkingly upon our great central markets. If those senders who thoughtlessly do this thing, and grumble at other people for their misfortune, were to think for one moment how large a number migrate from the towns to the seaside at this time, it should be evident to them that a much larger quantity of flowers and fruit is needed at these latter resorts than at other times. Go to what seaside place you will, you cannot look at the best shops without seeing piles of hampers or of boxes with the names of London's commission agents upon them, and in all probability the very goods may have been sent to London at first hand from some locality quite near. Possibly something could be done to assist matters by an increase in local markets, for such as these could assuredly dispose of a considerable bulk. But even failing this, with the daily growth of motor-waggons for agricultural produce, something may be done to distribute locally much of the material now sent to deluge just a few large centres, that in turn have to do the work of redistribution that the original senders should have done. To the grower the entire question is a most serious one, for he it is who is saddled with every expense of cultivation, &c., and who now and again fails to reap the benefit that is due to him, owing to a system unadapted to modern requirements. In not a few of our big markets some days ago Peas blocked every gangway; but if one-half the bulk had been more widely distributed, a greater all-round benefit must have resulted. With such a glut of Peas, it is little wonder such coarser articles as Cabbage should be but little in demand. *E. H. J.*

—— The last sentence in the editorial paragraph usually printed above the weekly market reports, and which runs thus, "The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate not only from day to day, but often several times in one day," should be carefully read by "A. B." and "X. Y. Z." (p. 84), as it represents the very essence of success or failure. Again, casual senders of produce cannot expect to get that attention from salesmen as do those who are regular senders of goods. During the past eighteen months I have been in the market on most market mornings, and in some instances have been surprised to find the price made by some flowers so high. Again, others of inferior quality would in many cases find no purchaser other than the flower-girl or coster, who often clear up large quantities of such material for a mere trifle. "X. Y. Z.'s" flowers may have arrived late, and being of a perishable nature, have been cleared out at any price. A good average price for double white Stocks has been 3*s.* per dozen, Sweet Peas 1*s.* to 3*s.* per dozen. His Shirley Poppies would be useless unless quite in a bud state. Showing the variations in price in the course of an hour or two, I may mention that just recently having to wait some time later than usual, I walked through the Flower Market just before it closed (9 A.M.). Sweet Peas were clearing out then at 6*d.* per dozen, equal in quality to others that had sold at 2*s.* to 3*s.* per dozen two hours earlier. This is only one instance among others. "A. B." seems to have made a fair price of his produce, excepting Peas. No doubt these arrived when the market was glutted, but even so, good Peas would make a fair price. In his case the salesman evidently did the best business, drawing a 20 per cent. commission, equal to one-third of the whole amount returned to the grower! *C. Herrin, The Parade, North Finchley.*

THE POTATO DISEASE.—In this neighbourhood (North Cornwall), the disease has spread alarmingly during the past week or ten days, and unfortunately is not restricted to the early varieties. Hitherto I have found that by keeping the rows of the late kinds well apart, i.e., 3 feet between the rows, and with the stronger growers 3 feet 6 inches, we have had less disease and a heavier yield, but this year that precaution has been of no avail. "A. D." on page 83, implies a culpable apathy with regard to the use of preventives and remedies on the part of growers; but with many of us in private gardens it is a case of "cannot" and not "will not." We are sadly handicapped on account of the expense. A system of false economy only too often prevails. *A. C. B.*

QUEEN WASPS.—Readers of the Holt Schooling frame of mind might construct a very interesting sum in arithmetic as to what would, had they lived and bred, been the produce of the huge number of queen wasps I saw exhibited for prizes by boys at the recent local flower show at Witley in Surrey. Five lads exhibited in all some 1,250 queen wasps, all having been caught prior to June 24. One had over 400, and if all were secured by himself, then his exertions must have been great. It was thought, however, that in such a case as this there had been a joint-stock operation. But it is not difficult to imagine what was saved to fruit growers generally in that beautiful part of Surrey by the destruction of these pests. How many hundreds of thousands of wasps might they not have produced during the season. So far the weather has not been helpful to wasp-breeding, but with so little fruit about, there will be doubtless more than enough of them presently. *A. D.*

THE DROPMORE ARAUCARIA.—Your correspondent, Mr. W. E. Gumbleton, is no doubt wrong about the origin of the large Araucaria here. There is another one in the pinetum which was given to Lord Grenville by King William IV., planted in 1830, and transplanted by Frost when 28 feet 6 inches high, it being then too close to the large Abies Douglasii. This is the tree your correspondent means; it is now about 35 feet high, and has lost its branches for quite 20 feet up. I may state that the note on p. 62 was taken from the Conifer Book at Dropmore, which is in Frost's own writing. *C. Page, Dropmore Gardens, Bucks.*

—— Although I knew this famous Conifer had been failing for some time, the news of its death came as a shock. During my time (over seven years) at Dropmore, Mr. Herrin, who took charge on the death of Frost, paid great attention to this tree, giving it frequent top-dressings of clayey loam, and during every period of drought had it well watered with a small fire-engine. The Araucaria alluded to by Mr. Gumbleton is quite distinct from the late lamented. In the catalogue compiled by Frost at the request of the late Lady Louisa Fortescue, he wrote:—"This tree (No. 17) was given to Lord Grenville by H.M. King William IV., from Kew, and planted near the Douglas Fir by the walk, and transplanted by me to the other side of the walk when 28 feet 6 inches high." And *the* Araucaria (No. 16) stood at the edge of the lake, some distance from the Douglas Fir. Of another Araucaria imbricata planted near the large one, Frost wrote:—"No. 32. Raised from a cutting taken from the plant in Kew Gardens, and got into the possession of Mr. Knight (now Veitch's) of Chelsea. Lord Grenville, knowing this, sent his gardener, Mr. Baillie, to purchase it at any price, and gave 10 guineas for it—mere branch with a few roots." Now that the famous Dropmore Araucaria is dead, it would be of interest to place on record its height and girth; perhaps Mr. Page would send the measurements to the Editor. In the list of the largest Conifers compiled by the late Mr. Dunn at the Conifer Conference in 1891, he gives the Dropmore tree—height 68 feet, girth 8 feet; and the Woodstock specimen, height 54 feet, girth 8 feet 4 inches. Surely, Mr. Gumbleton is wrong in attributing the introduction of the Araucaria imbricata to Captain Cook; was it not introduced by Menzies in 1796? Mr. Page is in error (see p. 62) in stating that the large Douglas Fir at Dropmore was planted by Frost, for this tree was planted in 1831 when Mr. Baillie was in charge of the garden at Dropmore; and in his catalogue Frost wrote of a Cedrus Deodara planted in 1831 (four years later), "The first tree I planted here." *A. C. Bartlett, Pencarrow Gardens.*

—— I was extremely sorry to learn the fine specimen Araucaria at Dropmore was dead. When I relinquished my charge of the garden and pinetum in December, 1899, it appeared to be in most robust health, and had, during the previous season, been making remarkably strong growth. The tree had during my twelve years' charge increased in height to the extent of 1 foot per year. It would be interesting to learn what treatment was accorded this fine tree during the spring and summer of 1900. *C. Herrin, The Parade, North Finchley.*

—— It was my fortune to have seen the old monarch frequently during the time it was in Mr. C. Herrin's care, and I could not but note that after he gave it a surface dressing of stiff soil and some manure that it greatly improved; indeed, it both heightened and spread some 12 inches yearly, which means for so big a specimen material enlargement. Had it been of the female sex it might possibly have long since become exceeding-

fertile of cones, and have thus led to its own extinction. It is stated, we know not on whose authority, that soon after Mr. Herrin left Dropmore, a dense coating of manure was placed over the roots, and that may have been the cause of death. If it be so, then does it show that these Conifers do not approve of coarse feeding? *A. D.*

FLOWER-POT LIFTER AND DRAINER.

(*Registered No.* 389877.)

The device shown in fig. 35 is designed to prevent the danger of breaking valuable vases by letting heavy pots containing growing plants slip when lifting them in and out of their "cachepots," or covers. The Flower-pot Lifter of which we give a sketch is an elegant and simple invention, made in various sizes to meet the ordinary pots generally in use.

The bottom is arranged so as to form a drainer when the flowers are watered. The device may be obtained of most sundriesmen, and the head office is Carlton Flower-pot Lifter, 39, Victoria Street, S.W.

SOCIETIES.

ROYAL HORTICULTURAL.

August 5.—The usual fortnightly meeting of the Committees of this Society took place on Tuesday last, in the Drill Hall, Buckingham Gate, Westminster. It was very evident that the holiday season is approaching, for the number of visitors was small, and the exhibits were fewer than has been the case for several months past. There was no need for using the long table that usually occupies the centre of the Hall, and this being so, the building appeared larger and much more convenient than when the spring displays necessitate having such narrow gangways, which become thronged to a most disagreeable extent.

The Floral Committee had two interesting plants before it from China, collected there by Mr. E. H. Wilson for Messrs. Jas. Veitch & Sons, Chelsea. These were Astilbe chinensis var. Davidii (see fig. 34 on p. 103), and Libocedrus macrolepis, which was described in these pages on Dec. 28, 1901. A First-class Certificate was awarded in each case. Other awards to novelties consisted of Awards of Merit to three varieties of Carnation, two of which were shown by Mr. Jas. Douglas, Great Bookham, and the other by Lady Ardilaun, Dublin.

There were few Orchids exhibited, and the only award recommended by the Orchid Committee to a novelty was that of a First-class Certificate to Lælio-Cattleya and Adolphus superba.

The most remarkable exhibit before the Fruit and Vegetable Committee, was that of a collection of fruits and fruit trees in pots from Miss Adamson's Garden, at Regent's Park, which may be described as being almost in the heart of London, and within two miles of Charing Cross. This successful exhibition of the results of town gardening was awarded the Society's Gold Medal.

There were no groups of Cactaceous plants shown, though it was expected there would be.

In the afternoon there were ten new Fellows elected; and a paper upon "Small Fruits from the Private Garden Point of View," by Mr. J. Smith, Mentmore Gardens, was read by the Rev. Eyre Kidson.

Floral Committee.

Present: W. Marshall, Esq., Chairman, and Messrs. H. B. May, Geo. Nicholson, Jno. Jennings, Jas. Walker, J. F. McLeod, G. Reuthe, C. R. Fielder, Chas. Dixon, Rev. F. Page Roberts, J. W. Barr, W. P. Thomson, Chas. E. Shea, E. H. Jenkins, W. J. James, J. H. Fitt, H. Turner, and W. Howe.

Dr. Bonavia, Worthing, exhibited flowers of a pretty buff-coloured, sweet-scented Oleander (Nerium odorum), described as coming from Hyères in the south of France. It thrives well here in a greenhouse, but is seldom cultivated.

Messrs. W. Bull & Sons, 536, King's Road, Chelsea, exhibited a hybrid Clivia with pale reddish-coloured flowers. Also a group of beautiful plants of Codiæums (Crotons). There were perfect picture-plants of Aigburth Gem, Prince of Wales, the broad-leaved Reedi, Thomsoni, &c.

Messrs. Jas. Cheal & Sons, Lowfield Nurseries, Crawley, exhibited a considerable collection of hardy flowers, including a number of varieties of Sweet Peas, &c.

Mr. E. Potten, Camden Nursery, Cranbrook, Kent, showed a nice collection of hardy flowers, among which a fine bunch of Rhus Cotinus atropurpureus was very conspicuous. There were some very large-flowered Pentstemons.

Mr. M. Pritchard, Christchurch, Hants, also showed hardy flowers, including Gladiolus, some very fine blooms of Scabiosa caucasica alba, Gaillardia sulphurea oculata, a charming flower; varieties of herbaceous Phlox, bunches of Liatris spicata, Tritomas, and an uncommonly fine variety of Chrysanthemum maximum (Silver Flora Medal).

Messrs. Hobbies, Ltd., Dereham, Norfolk, showed cut blooms of a large number of varieties of zonal Pelargoniums; also a number of strong spikes of flower of their new Lathyrus latifolius grandiflorus albus, the boldest and best white-flowered perennial Pea (Silver Banksian Medal).

Mr. Thomas S. Ware, Ltd., Hale Farm Nurseries, Feltham, exhibited a group of herbaceous Phloxes, the varieties being very fine. There were also flowers of Crinum Powelli, &c., C. P. album, Lilium speciosum, and a brilliant bouquet of Lobelia cardinalis (Silver Banksian Medal).

Messrs. Jno. Peed & Sons, West Norwood, London,

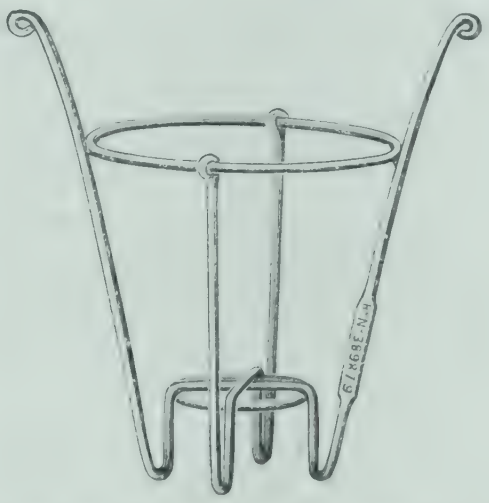

Fig. 35.—Carlton flower-pot lifter and drainer.

S.E., exhibited a group of Achimenes in several varieties, including the bright little A. coccinea, as well as those producing larger flowers; A. Verschaffelti, a striped one, is very attractive.

Messrs. Barr & Sons, King Street, Covent Garden, London, exhibited Lathyrus latifolius, "Apple-blossom," a prettily tinted pink and white variety; also a deeply coloured one named Brilliant; Reseda alba, a hardy Mignonette, having no scent, was shown in strongly grown specimens.

Some pretty seedling border Carnations were shown by Lady Ardilaun, Dublin (gr., Mr. A. Campbell). Among these were Mr. Leigh White, white; A. Campbell, deep crimson; Louis Botha, yellow, &c.

Some spathes of Richardia Elliotiana, R. Rehmanni, and several seedlings were shown by Messrs. Van Meerbeek & Co., Hillegom, Holland.

From Mr. F. M. Bradley, Church Street, Peterborough, came a bouquet of flowers of a scarlet-coloured Carnation named King Edward VII.

H. Balderson, Esq., Cower Hall, Hemel Hempstead, exhibited good flowers of border Carnations: Gladys Tayler, flesh-pink colour; and Mary Frances, a yellow ground flower with red edging.

Mr. Jas. Douglas, Edenside Nursery, Great Bookham, Surrey, exhibited a considerable number of seedling varieties of Carnation of much merit. Two of them are described under "Awards."

Mr. Chas. Turner, The Royal Nurseries, Slough, exhibited a collection of six dozen Carnation blooms, all of them accompanied by most immaculate white collars, which would have been better away. From the florist's point of view they were of very high merit, and a Silver Banksian Medal was awarded to the exhibitor.

Messrs. Phillips & Taylor, Lily Hill Nurseries, Bracknell, Berks, exhibited a collection of Carnations of numerous varieties, including new ones.

M. V. Charrington, Esq., The Warren, Hever, Edenbridge, showed a large number of seedling and other varieties of Carnations, and was awarded a Bronze Banksian Medal.

Messrs. B. R. Cant & Sons, Colchester, exhibited blooms of their new Tea Rose Mrs. B. R. Cant, and the new and brilliant H.P. Ben Cant, both of which have been described in these columns.

Awards.

Astilbe chinensis var. Davidii. — A new herbaceous Spiræa-like plant, growing 3 to 4 feet high, with most effective spikes of flower of reddish-purple colour, most brilliant when seen with the light passing through them; introduced from China by Messrs. Jas. Veitch & Sons. For a full description of this plant see p. 95, and the fig. on p. 103, in present issue (First-class Certificate).

Carnation Bookham White Clove.—A well-formed pure white flower, delicately fragrant. Shown by Mr. Jas. Douglas (Award of Merit).

Carnation Cedric.—A very large and distinct flower, with yellow ground, and very deep edging of red colour, the red extending through the centre of each petal to its base. From Mr. Jas. Douglas (Award of Merit).

Carnation Mr. Leigh White.—A magnificent and bold pure white border variety. Shown by Lady Ardilaun, Dublin (Award of Merit).

Libocedrus macrolepis.—A new Chinese species, introduced by Messrs. Jas. Veitch & Sons. It is very pretty in the young state, and would make an effective plant for indoor decorations. For description see *Gardeners' Chronicle*, Dec. 28, 1901, p. 467 (First-class Certificate).

Orchid Committee.

Present: Harry J. Veitch, Esq., in the Chair; and Messrs. Jas. O'Brien (Hon. Sec.), J. G. Fowler, De B. Crawshay, H. Little, H. M. Pollett, E. Hill, H. T. Pitt, G. F. Moore, F. W. Ashton, J. W. Odell, W. H. Young, H. A. Tracy, J. Colman, J. Charlesworth, and J. Douglas. There was a very interesting but small display of Orchids, the hybrids predominating.

Captain G. L. Holford, M.V.O., C.I.E., Westonbirt, Tetbury, Gloucestershire (gr., Mr. H. Alexander), was awarded a Silver Flora Medal for an effective group, the central plant in which was a fine specimen of Vanda cœrulea in perfect condition, and bearing two spikes of clear sky-blue flowers, one of the best examples of this beautiful Orchid shown. Beside it were a splendidly grown plant of Lælio-Cattleya × elegans "Westonbirt variety," with nine large, soft rose-coloured flowers on a spike; Lælio-Cattleya × Pharos (L. tenebrosa × C. superba), a rather showy rose and purple flower; Lælio-Cattleya × C. G. Röbling, of a pretty type; and in front a strong example of Epidendrum fragrans with seven spikes. The rest of the group was made up of several good specimens of Cypripedium superbiens, and C. × œnanthum superbum; C. purpuratum, C. × Bryan, C. × Cleopatra, and other Cypripediums; Cattleya × Patrocini, and a rose-coloured hybrid of C. Walkeriana; Miltonia Regnelli citrina, and Sophronitis grandiflora.

Messrs. Charlesworth & Co., Heaton, Bradford, staged a group of showy hybrids, the most attractive of which was their reddish, Indian-yellow Lælio-Cattleya × Adolphus (see awards). The others included were Cypripedium × Ian Hamilton (Argus Moensii × Charlesworthi), having the rose-tinted dorsal sepal of Charlesworthi, but with the lines bearing purple spots, and the broad, rose-tinted petals also bearing large blackish blotches as in C. Argus; C. × Chapmani magnificum, of fine quality; C. × Laurebel, C. × A. de Lairesse, C. × Eleanor, C. × Massaiana, C. × Leander var. Hyades, a neat hybrid between C. bicolor and C. Luddemaniana; C. × Hardyana, Lælio-Cattleya purpurato-Schilleriana, and the beautiful C. × Germania superba, showing more of C. × Hardyana, which was one of its parents, than those previously exhibited.

Messrs. Hugh Low & Co., Bush Hill Park, were awarded a Silver Flora Medal for a group principally of finely-flowered Cattleyas. The forms of C. labiata Gaskelliana were especially good, one variety being very large and well formed; another of a uniform pale pink, and other varieties showed considerable variations of colour. Also in the group were a very dark and handsome variety of Cattleya × Hardyana; C.

Eldorado ornata, with purple tips to the petals, and the pure white C. E. Wallisii; several fine C. superba splendens, C. Harrisoniana, and good plants of Cypripedium niveum

HENRY LITTLE, Esq., Baronshalt, Twickenham, exhibited cut spikes of two fine varieties of Cattleya Warscewiczii, that called "Little's variety" being very large and richly coloured; also a spike of Cattleya Mendeli, with fine flowers.

Mr. JAS. DOUGLAS, Edenside, Great Bookham, showed Lælio-Cattleya × Juno, "Edenside variety," the reverse cross of the hybrid between Lælia majalis and Cattleya Mossiæ, previously shown. The plant showed traces of Lælia majalis plainly, the flowers partaking largely of that species, the influence of the other parent not being so evident. The lanceolate sepals and petals were lilac, the broad front and recurved tips of the side lobes of the lip purple.

J. FORSTER ALCOCK, Esq., Northchurch, showed a dark form of Odontoglossum Harryanum.

F. A REHDER, Esq., Gipsy Hill (gr., Mr. Norris), showed Cypripedium × Sophie (Gowerianum × niveum), a white flower tinged with green on the lower part of the sepals and petals, and rose-coloured on the outer halves, the lines being marked with purple.

Messrs. WM BULL & SONS, King's Road, Chelsea, showed Cypripedium × Decia (Charlesworthi × superciliare), the features resembling those of C. Charlesworthi, but with larger dorsal sepal more closely veined with rose.

Awards.

FIRST-CLASS CERTIFICATE.

Lælio-Cattleya × *Adolphus superba* (L. cinnabarina × C. Aclandiæ), from Messrs. CHARLESWORTH & Co., Heaton, Bradford.—A charming little hybrid of unique colour and attractive shape. The habit of the plant is that of a strong Cattleya Aclandiæ, and the inflorescence of six or seven flowers is borne erect. The flowers are wax-like, the sepals and petals of a bright reddish Indian yellow, evenly spotted with claret colour, the rounded front lobe of the lip and tips of the side lobes being purplish-rose, with yellow lines on the disc. A very worthy production, and a good advance on the original which was shown at the Hybrid Conference in July, 1899, when it was given an Award of Merit.

CULTURAL COMMENDATION.

Mr. H. Alexander, Orchid Grower to Captain G. L. HOLFORD, Westonbirt, Tetbury, for a splendidly grown plant of Vanda cœrulea, a single stem bearing thirty-seven leaves, and perfect from the base to the top. The plant bore two spikes of twelve and sixteen, large light blue flowers all expanded together.

Fruit and Vegetable Committee.

Present: H. Balderson, Esq. (in the Chair); and Messrs. Jos. Cheal, W. Bates, S. Mortimer, Alex. Dean, W. Pope, H. J. Wright, Geo. Kelf, J. Jaques, J. Willard, and A. H. Pearson.

Some grand samples of Black Hamburgh Grapes were shown by E. A. HAMBRO, Esq., Palace Gardens, Hayes, Kent (gr., Mr. Beale). The six bunches shown were produced by a Vine stated to be about 100 years old, and having a stem of about 5 ins. diameter. The best bunch could hardly be less than 4 lbs. in weight, and the others were about 3 lbs. each. In addition, the berries were large, plump, highly coloured, and thoroughly well "finished" (a Silver-gilt Knightian Medal was deservedly recommended).

Messrs. LAXTON BROTHERS, Bedford, exhibited a few fruits of their late-ripening variety Trafalgar, from plants grown in a northern locality.

A very remarkable exhibit of fruit trees in pots, and gathered fruits, came from Miss ADAMSON, South Villa, Regent's Park (gr., Mr. G. Kelf). There were thirteen large Plum-trees in pots, including Jefferson, Kirke's, Cox's Emperor, and varieties of Gages. All the trees bore a good crop of fruits in a green state. Amongst the gathered fruits were splendid examples of the Peaches Bellegarde, Royal George, Barrington, Dr. Hogg, and other varieties. There were also three bunches of each of the following varieties of Grapes—Buckland Sweetwater and Black Hamburgh. There were ripe fruits of Czar Plum; also Melons, Sutton's Scarlet, Frogmore Scarlet, and Hero of Lockinge. Seventeen dishes of Gooseberries, two of Red Currants, one of Morello Cherries, and one of Raspberries. All of this choice fruit was grown in a garden less than two miles distant from Charing Cross, much nearer than Chiswick, and the exhibit was appropriately awarded a Gold Medal.

Messrs. HARRISON & SONS, Royal Midland Seed House, Leicester, exhibited a collection of Peas, which included as many as seventy-seven varieties, and most of the standard ones, from the small-podded Earliest-of-All, William Hurst, Pearl, and Chelsea Gem, to the larger ones, as Telegraph, Telephone, Magnum Bonum, and Triumph. The Early Eclipse, Emperor of Japan, Doris Harrison, Glory, and Exhibition Marrow are among the varieties raised by the firm. The specimens including, as they did, both late and early ripening varieties, were not all in quite "table" condition (Silver Banksian Medal).

MANCHESTER AND NORTH OF ENGLAND ORCHID.

JULY 17.—S. GRATRIX, Esq., Whalley Range (gr., Mr. Cypher), staged a few very choice plants, among which were Sophro-Cattleya × Chamberlainiana, which received a First-class Certificate, the same award being made to Lælio-Cattleya × Martineti. Lycaste × Janetta came from the same collection, and appears to be a natural hybrid; only one flower was on the plant, and the committee desired to see this again.

W. BOLTON, Esq., Warrington, exhibited two very good spotted forms of Odontoglossum crispum, viz., O. c. var. Boltoni and O. c. Joseph Chamberlain; the latter was most peculiarly marked, having dull brown spots of a large size, and the flowers altogether were above the average size. Both plants received First-class Certificates.

Mr CHAS. PARKER, Preston, exhibited a fine form of Cypripedium Curtisii, named giganteum, for which he received an Award of Merit.

R. ASHWORTH, Esq., received a Silver Medal for a nice group of plants, and Awards of Merit for Odontoglossum crispum var. Amy and O. c. var. Florrie, both prettily spotted forms; the same award was given to O. c. Victoria Regina.

Mr. A. J. KEELING exhibited an Odontoglossum, natural hybrid (supposed) between O. crispum and O. Pescatorei.

Mr. W. B. UPJOHN exhibited a handsome form of Odontoglossum × elegantius.

R. TUNSTILL, Esq., Burnley, exhibited a fine plant of Cypripedium × Winifred Hollington, which has been previously dealt with; and the same exhibitor was awarded a Bronze Medal for his group.

Messrs. CHARLESWORTH & Co., Bradford, obtained a Silver Medal for a choice group of plants, and an Award of Merit for Lælio-Cattleya × Minna Resbach. *P. W.*

NEWPORT AND COUNTY HORTICULTURAL.

JULY 31.—This Society held a splendid show in the King's Hill Field, Newport. The entries were more numerous than at any previous show, while the non-competitive exhibits filled considerable space. Several valuable special prizes were offered.

GROUPS OF PLANTS (OPEN).

These formed a great attraction, and the leading one, for miscellaneous plants in a space of 11 ft. in diameter, was arranged by Mr. CYPHER, of Cheltenham, and consisted of choice Orchids, Ferns, Palms, Crotons, Lilies, &c. It was perfect in its way, and excelled the 2nd prize exhibit, staged by Mr. Carpenter, gr. to W. J. BUCKLEY, Esq., of Llanelly.

There were six entries for a group in a space of 50 sq. ft., and the competition was close, Mr. Powell, gr. to Col. WALLACE, Chesterholm, Newport, taking the lead.

Of Begonias, in spaces of 25 sq ft., there were four showy groups, Mr. Jones, gr. to R. WILLIAMS, Esq., being placed 1st.

In a class for six ornamental foliage plants, Mr. CYPHER was 1st, staging large, healthy plants of Kentia Fosteriana, K. australis, Latania borbonica, and three highly coloured Crotons. Mr. Duff, gr. to Mrs. WILLIAMS, Bryngias, Newport, was 2nd. Mr. CYPHER was also a good 1st with six stove and greenhouse plants.

For exotic Ferns, Mr. Powell, gr. to Col. WALLACE, was 1st with fine specimens of Davallia Moreana, Cyathea medullaris, Adiantum fragrantissimum, &c.

Four zonal Pelargoniums were particularly well shown by Mr. Wheatland, gr. to J. LYNTON, Esq.

OPEN TO AMATEURS AND GENTLEMEN'S GARDENERS.

For four stove and greenhouse plants, a Silver Medal was offered by the Society for the best plant staged in this class. 1st, Mr. Lockyer, gr. to C. HANBURY, Esq., Pontypool Park, who staged excellent specimens of Stephanotis floribunda (which gained for its exhibitor the Silver Medal), Statice profusa, Clerodendron Balfouri, and a freely-flowered plant of Anthurium Scherzerianum. 2nd, Mr. POWELL, followed by Mr. Harris, gr to G. F. COLBORNE, Esq.

There were four entries of four foliage plants, Mr. HARRIS securing 1st honours. There were also classes for Orchids, Begonias, &c.

CUT FLOWERS.

Carnations, twelve blossoms.—These brought seven exhibitors, Messrs. BLACKMORE & LANGDON, Bath, being a good 1st.

Roses, twenty-four hybrid perpetuals, distinct.—Amongst four good lots staged, the KING'S ACRE NURSERY Co., Hereford, were deservedly placed 1st.

For twelve distinct Tea Roses, 1st, Messrs. TOWNSEND & SONS, with a choice set of blooms; 2nd, Mr. S. TRESEDER.

Sweet Peas, arranged in a space of 9 feet by 3 feet, were beautifully put up by Messrs. HOUSE & SON, and Mr. BASHAM, who were 1st and 2nd in the order named.

TRADE EXHIBITS.

Messrs. PATTESON, of Shrewsbury, were awarded a Silver Medal for a large stand of Violas and Pansies, and Messrs. BLACKMORE & LANGDON received a similar award for a splendid stand of Begonia blooms; while Bronze Medals were awarded to the KING'S ACRE Co. for fruit and Roses; to Mr. BASHAM, for a collection of Sweet Peas; and to Messrs. TUPLIN & SONS, for Carnations.

READING GARDENERS' MUTUAL IMPROVEMENT.

THE annual outing of the above Association was held recently, and notwithstanding the dull weather, a very enjoyable time was experienced. The members, who came from various parts of the district, including Mr. Leonard Sutton (President), Messrs. Townsend (Sandhurst Lodge), Rudd (Hon. Sec. of the Theale Gardeners' Association), Stroud (Burghfield), Green, Roberts (Woodley), Loader, Pontin, Davidson (Wokingham), Watts, Prior (Crowthorne), Barefoot (Mortimer), Martin (Sonning), Cox (Calcot), Ritchings (Wellington College), Herridge (Caversham), Wright, Lailey (Bucklebury), Lever (vice-chairman), Cox (hon. sec.), Fry, Macdonald, Judd, Lees, Scutter, Pembroke, Hinton, &c., met at Caversham Lock, and travelled by the "Mystery" to Henley, when, by the kind permission of Mrs. Noble, the beautiful gardens and grounds of Park Place were visited, the day being spent here. On arrival, the party was received by Mr. G. Stanton, the head gardener (Chairman of the Association for 1902), and was joined here by other members. Proceeding through the dark arches, an inspection was made of the outdoor gardens, where Roses and Sweet Peas were blooming profusely. Of the latter, 160 varieties are grown here. At the luncheon the President, on behalf of the members, tendered their thanks to Mrs. Noble. Afterwards the company broke up into several parties, some going to the cricket-ground, and others rambled through the vineries and greenhouses. After tea the party wended their way to the boat, and reached Reading about 9 o'clock.

LEICESTER ABBEY PARK FLOWER SHOW.

AUGUST 5, 6.—This annual fixture, held in ideal flower-show weather, opened on Tuesday last, and attracted an enormous crowd of visitors. The tents became densely crowded during the early part of the afternoon. There was one of the best displays ever seen in the Abbey Park; and the Park itself is a huge flower show, for all Mr. Burns' floral arrangements are of a very bright and pleasing character. Two main objects are sought by the Corporation of Leicester, who are the promoters of this exhibition (for there is no subscription list, nor any society): one for the purpose of raising funds for providing music in the parks during the summer months; another important end sought is to encourage the cultivation of flowers and vegetables amongst the working classes of the town. In the latter direction very gratifying results have been achieved. The cottagers exhibits of plants, flowers, and vegetables, were most praiseworthy.

Groups of plants arranged for effect filled the centre of a long tent. Mr. J. CYPHER, Cheltenham, was beaten on this occasion by Mr. Thompson, gr. to G. H. TURNER, Esq., Littleover, Derby.

Mr. Blakeway, gr. to P. H. MUNTZ, Esq., M.P., was 1st with six specimen plants. There was a class for six exotic Ferns. The best specimen plant was Allamanda Hendersoni, from Mr. H. BLAKEWAY.

CUT FLOWERS.

In the cut flower division, Roses were a leading feature, some of the leading trade growers competing. Messrs. A DICKSON & SONS, Newtownards, Belfast, were 1st with thirty-six varieties, having fine, even, well-coloured blooms, among them H.T. Souvenir de Charles Grahame, remarkable for its brilliant colour. With twenty-four varieties, Messrs. A. DICKSON & SONS were 1st, and also in a class for twelve Teas and Noisettes, some fine blooms being staged. In the class for twelve blooms of one variety, Messrs. D. & W. CROLL, Dundee, came 1st with Mrs. W. J. Grant, and Messrs. DICKSON & SONS with Bessie Brown. The best Rose in the show was Bessie Brown, from Messrs. HARKNESS & Co. Roses were also shown by gardeners and amateurs, the leading honours were divided between the Rev. J. H. PEMBERTON, Havering, Essex; M. WHITTLE, Leicester; and R. T. HOBBS, Thorniloe.

Carnations and Picotees were shown, the Birmingham growers appearing to take the leading prizes. Hardy perennials and bulbous plants were shown in splendid bunches. There were good collections of

stove and greenhouse cut flowers, also of hardy annuals and excellent fancy Pansies. Floral decorations were represented by charming baskets of flowers, hand bouquets, sprays, &c. Similar classes for cut flowers were found in the amateurs division, and here the competition was good throughout.

There were several classes open to all for fruit, and the produce was excellent.

Fruit.

There were two classes for eight dishes of fruit, in one of which a Pine could be included, in the other not. Mr. J. Gumbleton, Elvaston Castle Gardens, carried all before him, in the former class. He had very fine Muscat of Alexandria, Muscat of Alexandria, and Black Hamburgh Grapes, Noblesse and Chancellor Peaches, Lunge Nectarines, Queen Pine, and Melon. Mr. J. Read, Ereby Park Gardens, was 2nd. Mr. Goodacre was also 1st for a collection of four varieties of Grapes, two bunches of each. He had superb Madresfield Court Muscat of Alexandria, Mrs. Pearson, and Black Hamburgh.

For two bunches of Black Hamburgh, Mr. Goodacre was 1st, with highly finished examples; and Mr. J. Thompson, 2nd, also with two bunches of Muscat of Alexandria, very good; Mr. W. Duncan being 3rd. The 1st prize for any other black variety was taken by magnificent Muscat Hamburgh from Mr. Goodacre. In that for any other white but Muscat, Mr. Duncan came 1st with finely developed Buckland Sweetwater; Mr. Read being 2nd with the same.

Peaches were represented by Chancellor and Grosse Mignonne. Nectarines by Elruge and Lord Napier; Plums by Transparent Gage, Kirke's and Jefferson. There were some very fine Tartarian Cherries; but with the exception of a fair dish of Lady Sudeley ripened under glass, there was a very poor display of Apples. Bush fruits were very good.

Miscellaneous exhibits were numerous, varied, and interesting. Gold Medals were awarded to Messrs. W. Bentley, Leicester, for cut flowers; Amos Perry, South Tottenham, for hardy plants and Water Lilies, the latter including a new pigmy form of N. rubra not yet distributed; to Messrs. Harrison & Sons, Leicester, for plants and flowers; to Messrs. Gilbert & Son, Bourne, for a very fine collection of 100 bunches of Sweet Peas; and to Messrs. Blackmore & Langdon, Bath, for a display of double and single-flowered Begonias. Silver Medals were awarded to several other collections.

TRADE NOTICE.

Messrs. John MacRimmon and Samuel William Fulton have opened business as nurserymen and seedsmen, and will trade as MacRimmon & Fulton, at 12, Humberstone Road, Leicester. Mr. MacRimmon has been for a period of eighteen months head shopman to Messrs. Harrison & Sons, Leicester, and previously manager for several years to Mr. Edward Wiseman, Elgin. Mr. Fulton was for about five years with Messrs. Ben Reid & Co., Ltd., Aberdeen, and for the last eighteen months second shopman to Mr. Chas. Warner, Leicester.

MARKETS.

COVENT GARDEN, August 7.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Fruit.—Average Wholesale Prices.

	s.d.	s.d.
Apples, per case	1 0	13 0
— English, per sieve ...	2 0	3 0
— Quarrendens, per sieve	7 0	—
— Suffields, per sieve	3 0	—
Apricots, per doz.	2 6	—
Bananas, per bunch	7 0	12 0
— loose, dozen	1 6	1 6
Cherries, sieve ...	6 0	12 0
Currants, Black, sieve	3 0	5 0
— Red sieve ...	4 0	5 0
Figs, per dozen ...	1 6	3 0
Gooseberries, per sieve or bushel	3 0	5 0
Grapes, new Hamburgh, per lb.	2 0	—
— — B., per lb.	0	1 0
— Alicante, lb.	1 0	1 6
— Colmars, lb...	1 0	1 6
Grapes, Belgians, per lb.	0	5 0
— Muscats, A., per lb. ...	2 0	3 0
— — B., per lb.	0	1 0
Lemons, per case	9 0	11 0
Melons, foreign, each	1 6	2 0
— English, each	1 0	2 0
Nectarines, A., per dozen ...	0	12 0
— B., per dozen	2 0	4 0
Oranges, per case	6 0	9 0
Peaches, A., per dozen	12 0	18 0
— B., per dozen	2 0	4 0
Pines each ...	3 0	6 0
Raspberries, per doz. punnets	2 0	4 0
— cult.	2 0	4 0
Strawberries, A., per lb. punnet	0	3 0
— pecks	1 0	1 6

Cut Flowers, &c.—Average Wholesale Prices.

	s.d.	s.d.
Achillea, per doz. bunches ...	1 0	1 6
Arums, per doz. .	2 0	4 0
Asparagus Fern, per bunch ...	0 6	1 6
Asters, per dozen bunches ...	4 0	12 0
Coreopsis, per doz. bunches ...	0 9	1 6
Eucharis, per doz.	2 0	3 0
Carnations, bnch.	0 6	1 6
Gaillardia, dozen bunches ...	1 0	1 6
Gladiolus, The Bride, per doz. bunches ...	2 6	3 6
— Blushing Bride, per doz. bunches ...	3 0	6 0
— Brenchleyensis, per doz. spikes	1 6	2 6
— various, dozen bunches ...	2 0	6 0
Gypsophila, per bunch	0 2	0 4
Iceland Poppies, p. doz. bunches	0 9	1 0
Lavender, per dz. bunches ...	4 0	5 0
Lilium album, p. doz blooms	1 0	2 0
— Harrisii, per bunch ...	1 0	2 6
— rubrum, per dozen blooms...	1 0	2 6
Lily of the Valley, dozen bunches	4 0	8 0
Marguerites, Yellow, per dozen bunches ...	0 6	1 6
Pelargoniums, scarlet, dozen bunches	2 0	3 0
Phlox, per dozen bunches	4 0	6 0
Roses, Mermet, p. bunch... ...	1 6	3 0
— red, p. dozen bunches ...	3 0	8 0
— various, doz. bunches ...	3 0	9 0
Smilax, per doz. blooms	1 6	2 6
Sweet Peas, per dozen	0 9	1 6
Stocks, per dozen	3 0	6 0
Tuberoses, per doz. blooms ...	0 3	0 4

Plants in Pots, &c.—Average Wholesale Prices.

	s.d.	s.d.
Adiantums, per dozen	4 0	9 0
Arbor Vitæ, per dozen	6 0	36 0
Aspidistras, per dozen	18 0	36 0
Asters	3 0	4 0
Calceolarias, per dozen	3 0	4 0
Campanula, per dozen	4 0	8 0
Coleus, per dozen	3 0	4 0
Crassula, per doz.	6 0	12 0
Crotons, per doz.	18 0	30 0
Dracænas, var., per dozen ...	12 0	30 0
Euonymus, vars., per dozen ...	6 0	18 0
Ferns in variety, per dozen ...	4 0	30 0
Ficus elastica, per dozen	9 0	24 0
Fuchsias, per dozen	3 0	4 0
Heliotrope, doz...	3 0	6 0
Herbaceous and perennial plants in var., per box	1 0	1 6
Hydrangeas, per dozen	6 0	18 0
Ivy Pelargoniums, per dozen ...	3 0	4 0
Lilium Harrisi, per dozen ...	4 0	8 0
— rubrum, doz.	6 0	9 0
— album, doz....	6 0	9 0
Lobelias, per box	1 0	1 6
Marguerites, doz.	4 0	6 0
— Etoile d'Or, per dozen ...	4 0	10 0
Mignonette, p. doz.	3 0	4 0
Nasturtium, per dozen	2 0	4 0
Palms, various, each	1 0	20 0
Pelargoniums, scarlet ...	4 0	12 0
Petunias, per doz.	2 0	4 0
Pteris tremula, per dozen	4 0	12 0
— Wimsetti, per dozen	4 0	12 0
— Major, p. doz.	4 0	12 0
Pyrethrum, double yellow, per doz.	2 0	4 0
Rhodanthe Manglesii, per doz.	2 0	3 0
Roses, various, per dozen	9 0	24 0
Verbenas	3 0	6 0

Vegetables.—Average Wholesale Prices.

	s.d.	s.d.
Artichokes, Globe, per dozen ...	1 6	2 0
Beans, dwarf, per sieve	3 0	4 0
— Broad, per bushel	1 3	1 6
— Scarlets, bus.	6 0	—
Beetroots, per dozen	2 6	—
Cabbage, p. tally	3 0	5 0
Carrots, per doz. bunches ..	0 9	1 0
— bag (washed).	6 0	—
Cauliflowers, per dozen	2 0	4 0
Celery, per bundle	1 0	1 3
Cress, per dozen punnets ...	1 3	—
Cucumbers, per dozen	1 6	2 6
Endive, new French, p. doz.	1 6	—
Horseradish, foreign, p. bunch	2 0	2 6
Leeks, 12 bunches	1 6	—
Lettuces, Cos, per score	0 6	1 3
— Cabbage, per dozen	0 4	0 6
Marrows, Vegetable, dozen .	1 0	—
Mint, doz. bunches	1 6	—
Mushrooms, house, per lb.	0 9	1 0
Onions, new, green, doz. bunches	2 0	2 6
— bag	5 0	—
— foreign, case	6 0	7 0
— picklers, per sieve	3 6	—
Parsley, doz. bun.	1 6	2 0
— sieve ..	0 6	1 0
Peas, English, per bushel ...	2 0	3 0
— bag	4 0	5 6
Potatos, new, per ton	4 0	5 6
Radishes, p. doz. bunches ...	0 9	1 0
Salad, small, punnets, per doz....	1 3	—
Shallots, per doz.	0 2	—
Spinach, English, bushel	3 0	4 0
Tomatos, English, per doz. lb.	3 0	4 0
— Channel Ilds. per lb. ...	0 3	0 3½
Turnips, new, per dozen ...	2 6	5 0
— bags	5 0	—
Watercress, per doz. bunches...	0 3	0 6

Remarks.—Green Walnuts, per bushel, 6s.; white Denia Grapes, in barrels of about 20 lb. a piece, fetch 7s. 6d.; washed Carrots, in bags, have commenced to arrive; Vegetable-Marrows, in pots or pads, fetch 2s., in bushels and flats, 1s., 1s. 6d.; Cherries and Strawberries are nearly over; Red Lammas Pears fetch 3s. 6d., 4s. per sieve; Plums, Rivers' Early, per sieve, 4s.; Gages, 6s.

Potatos.

English, 80s. to 110s. per ton. *John Bath, 32 & 34, Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

Glasgow, August 6. The following are the averages of the prices during the past week: Grapes, English, 1s. 8d. to 2s. 3d. per lb.; do., Belgian, 9d. to 1s. 3d. per lb.; do., home, 3d. to 1s. 4d.; Oranges, 12s. to 15s. per box; Lemons, Naples, 11s. to 13s. do.; Cherries, English, 4d. to 6d. per lb.; Strawberries, 2d. to 6d. per lb.; Green Gages, 4d. to 6d. do.; Raspberries, 5d. to 6d. do.; do., Dutch, £18 per ton; Black Currants, 6d. per lb.; do., Cape-type, £25 per ton; do., red, 3d. to 4d. per lb.; £17 per ton; Gooseberries, Scotch, Warrington, £14 to £16 per ton; do., Irish, £16 to £18 do. Pears, 2s. to 2s. 6d. per small sieve. Mushrooms, 2s. per lb.; Tomatos, 6d. to 9d. per lb.; do., Scotch, 5d. to 6d. do.; do., Guernsey, 5d. to 6d. do.; Onions, Madeira, 4s. to 6s. per cwt.; do., Valencias, 5s. to 6s. per box; Cucumbers, 3s. 6d. to 4s. per box; Carrots, 5s. 6d. to 6s. per hamper; Cauliflowers, 5s. to 6s. do.

Liverpool, August 7.—*Wholesale Vegetable Market.*—Potatos, per cwt.: Early Regents, 2s. 3d. to 2s. 6d.; British Queen, 2s. 6d. to 3s.; Scotch Triumph, 2s. 6d. to 3s.; Kidneys, 3s. 3d. to 4s.; Turnips, 6d. to 10d. per dozen bunches; Swedes, 2s. 6d. to 3s. per cwt.; Carrots, 6d. to 8d. per dozen bunches; Parsley, 4d. do.; Lettuce, 6d. to 10d. per dozen; Cucumbers, 1s. 3d. to 2s. 6d. do.; Cauliflowers, 2s. to 3s. do.; Cabbages, 10d. to 2s. 6d. do.; Celery, 2s. 6d. do.; Peas, 4s. 9d. to 5s. 6d. per hamper; Beans, 2s. to 2s. 6d. do.; do., Kidneys, 2s. 9d. to 3s. per peck. *St. Johns*: Potatos, new, 1d. to 1½d. lb.; Grapes, English, 1s. 6d. to 2s. 6d. do.; do., foreign, 4d. to 6d. do.; Pines, English, 6s. each; Apples, 4d. to 6d. per lb.; Tomatos, 4d. to 5d. do.; Currants, red and white, 5d. do.; do., black, 6d. do.; Gooseberries, 4d. per quart, Peas 1s. 2d. per peck; Cucumbers, 4d. each; Mushrooms, 1s., 3d. per lb. *Birkenhead*: Potatos, 1s. to 1s. 4d. per peck; Peas, 10d. to 1s. 2d. do.; Cucumbers, 2d. to 6d. each; Cherries, 6d. to 10d. per lb.; Currants, black, 6d. to 8d. do.; do., red, 4d. to 5d. do.; Gooseberries, 2d. to 4d. per lb.; Grapes, English, 2s. 6d. do.; do., fore., 4s. 6d. to 8d. do.

CORN.

Average Prices of British Corn (per imperial qr.) for the week ending August 2, 1902, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1901.	1902.	Difference.
	s. d.	s. d.	s. d.
Wheat	27 6	31 8	+ 4 2
Barley	23 1	25 0	+ 1 11
Oats	20 0	22 10	+ 2 10

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period July 27 to August 2, 1902. Height above sea-level 24 feet.

1902. July 27 to August 2.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 27	S.W.	60·4	57·5	64·0	58·3	0·05	62·5	60·1	57·2	53·2
Mon. 28	W.S.W.	62·2	55·0	68·2	58·0	...	60·7	60·0	57·2	48·5
Tues. 29	W.S.W.	61·2	56·8	69·2	50·3	...	61·0	59·9	57·2	42·2
Wed. 30	W.S.W.	63·7	57·0	68·7	49·0	0·06	62·0	60·0	57·2	48·7
Thu. 31	W.N.W.	59·4	54·7	68·2	52·3	...	61·3	60·0	57·3	50·3
Fri. 1	N.E.	54·6	52·6	63·9	52·3	...	60·5	60·0	57·5	48·2
Sat. 2	S.W.	58·9	54·0	68·2	43·2	0·11	59·0	59·5	57·5	36·9
						Tot				
Means	...	60·1	55·4	66·6	51·9	0·22	61·0	59·9	57·3	44·1

Remarks. The weather of the past week was rather dull, with intervals of bright sunshine. The wind has been rough and very cold for the time of year.

General Observations.

The following Summary Record of the weather throughout the British Islands, for the week ending Aug. 2, is furnished from the Meteorological Office:—

"The weather during this week was cool and mostly of an unsettled character. Rain was very frequent in the extreme N. and N.W., but several fair, dry days were experienced in the S. and E. Thunder was heard in some parts of England on Friday, and again in a few localities on Saturday.

"The temperature was below the mean, the deficit in most districts being [illegible] in the Channel Islands, [illegible]

ever, it was only 2°. The highest of the maxima were registered on somewhat irregular dates, and varied from 71° in England, S. and E., to 64° in Scotland, N., and to 63° in Scotland, W. The lowest of the minima, which occurred either during the earlier days of the week or towards its close, ranged from 37° in England, E., 38° in Scotland, W. and E., and 39° in England, S.W., to 42° in Ireland, N., and to 50° in the Channel Islands.

"The *rainfall* was less than the mean over the Kingdom as a whole, but rather more than the normal in Scotland, N.

"The *bright sunshine* was deficient in many districts, but exceeded the mean amount in Scotland, N. and W., England, N.E. and N.W., Ireland, S., and the Channel Islands. The percentage of the possible duration varied from 52 in the last-named district to 40 in England, E., 25 in Scotland, N., and 21 in Ireland, N."

THE WEATHER IN WEST HERTS.

ANOTHER cool week and the third in succession. Throughout this cool period the shade temperature has at no time exceeded 70°, while the nights have been nearly all more or less cold for the season, and on as many as five of them the exposed thermometer indicated readings within 7° of the freezing-point. The ground is at the present time about 1° warmer than is seasonable, both at one foot and two feet deep. Rain fell on but one day of the week, and even then the measurement was less than a tenth of an inch. During the last seven weeks only 1½ inch of rain has fallen, or about one-third of the average quantity for that period. It is now nearly five weeks since any rain-water at all passed through the bare soil percolation gauge. The record of bright sunshine proved very poor during the week, the mean daily duration amounting to less than 3½ hours, which is not much more than half the average quantity for the time of year. The winds were, as a rule, light, and the air dry.

THE WEATHER OF JULY.

During the first half of July the weather remained for the most part very warm, but throughout the rest of the month low temperatures prevailed. There was, however, at no time any very exceptional heat or cold. Taking the month as a whole, it was the coldest July for ten years. Rain fell on only nine days, and the total measurement was less than half the July average. No rain-water came through the percolation gauge on which short grass is growing during the month, and none through the bare soil gauge after the first two days. This was the most cloudy July since 1894. The sun shone on an average for only about 5¾ hours a day, which is a very small record for the time of year. It was also one of the calmest Julys I have yet recorded, the average rate of movement of the air at 30 feet above the ground being less than four miles an hour. The amount of moisture in the air was on the whole rather less than is usual in July. *E. M., Berkhamsted, August* 5, 1902.

ANSWERS TO CORRESPONDENTS.

*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

APONOGETON: *R. V. & S.* We can find no caterpillars upon the leaves received.

BOOKS: *H. Froude.* The book alluded to is probably *Lilies for English Gardens*, by Miss G. Jekyll; published by G. Newnes, 7—12, Southampton St., Covent Garden, W.C. —*W. B. W. The Handbook of Hardy Trees, Shrubs, and Herbaceous Plants*, by Decaisne, Naudin & Hemsley, published by Longmans & Co., London, will answer your purpose, as it gives all but the newest species and varieties of the genera with which it deals.

CARNATION SPORT FROM VARIETY MRS. REYNOLDS HOLE: *F. L. T.* The flowers are very rich in colour and fragrant, but in almost every instance the calyx has burst badly.

CLOVER: *A. B., Ltd.* Alsike Clover, a hybrid between T. repens and T. pratense.

CRATÆGUS PYRACANTHA NOT FLOWERING AFTER SEVERE CUTTING BACK: *F. T. Mott.* The cause is due probably to the over-crowded state of the young shoots, and their consequent lack of vigour, as two-year-old wood usually flowers whether the plants face south or west, provided the situation is open. The remedy, in your case, is to thin the shoots, leaving such as are about of one length and strength at full length.

CUCUMBER ROOTS: *J. O.* Your roots are affected with eel-worm, introduced with the loam or the manure, or both. It has often been figured and described, but no one has suggested any remedy beyond turning out the old soil and starting afresh. If you can bake the soil before using it, you might kill the creatures or their eggs.

FERN: *Pteris.* The fronds appear to have been injured by mites or other such insects, but there are none upon the specimens sent. Have the plants been subjected to fumigation?

GOOSEBERRY INJURED BY A FUNGUS: *Downe.* Gooseberry-rust, Æcidium Grossulariæ. See *Gardeners' Chronicle*, vol. xxiv., 1898, p. 145, for figure and life history. A fungus difficult to extirpate, owing to the fact that it exists in various forms on a number of host plants.

GRAPES: *W.C., H. Thompson, & P. H. R.* Your Grapes are affected with "spot," the result of the attack of a fungus. You can do nothing this year but burn all affected berries. Next season spray with liver-of-sulphur, ½oz. to a gallon of water, two or three times before the flowers open. See recent issues of the *Gardeners' Chronicle*.

"KINDS" OF FRUIT: *H. S. H.* The word "kind" is one that brings endless confusion among exhibitors and judges, because it can be interpreted in several ways. As, however, the Royal Horticultural Society's "code" describes black and white Grapes, distinct kinds (from an exhibition point of view), also Peaches and Nectarines, there seems no reason why black and red Currants should not be considered distinct. At the same time the exhibitor should consider whether his collection of five kinds might not be made more representative if he included in it but one dish of Currants.

LILY-BULB: *S.* We suspect the failure to be due to a fungoid disease, but cannot be sure unless you send the stem of a plant that is attacked similarly.

NAMES OF PLANTS: *B. W. H.* — Eucalyptus Gunni.—*Correspondent.* Lomatia ferruginea. —*E. F.* A species of Clavaria covered with a whitish mould, Penicillium candidum.—*Max L.* 1, Delphinium; 2, Silene, still under examination; 3 and 4, Codonopsis ovata; 5, Plantago maxima; 6, Patrinia rupestris. —*T. C.* Peperomia resedæflora.—*J. F.* Ononis spinosa, Rest Harrow.—*S. S.* 1, 2, forms of Lastrea filix-mas; 1 is var. polydactyla, 2, cristata; 3, Pellea falcata, Rose we are unable to name.—*A. E.* 1, Symphoricarpus racemosus, variegated; 2, Cephalotaxus pedunculata, fastigiate variety; 3, Thuya orientalis var.; 4, Retinospora squarrosa of gardens; 5, Pyrus Aria; 6, Sorbus or Pyrus Aucuparia (Mountain Ash).—*J. G.* Paulownia imperialis.—*C. P.* Odontoglossum Lindleyanum.—*P. J. E.* Oncidium incurvum.—*H. T. B.* 1, Davallia platyphylla, often called Microlepia platyphylla; 2 and 3, Adiantum Waltoni; 4, a variety of A. capillus-veneris; 5, A. cuneatum grandiceps; 6, A. cuneatum elegans; the Adiantums are all garden-raised forms, varying considerably. — *Correspondent.* Eryngium Oliverianum; Cupressus Lawsoniana var.; Rosa sps.

POTATO-TUBERS ON THE HAULM: *F. T. M.* By no means an uncommon occurrence, sometimes due to injury to the original tuber by a fork or other cause.

ROYAL GARDENS, KEW: *A Young Scot.* Write to Mr. W. Watson, Curator, Royal Gardens, Kew, for a form to fill up. You appear to have the necessary qualifications for employment in the gardens there.

THE COLOUR OF THE FOLIAGE OF PLANTS: *Puzzle.* It is not possible to answer all your questions without seeing the plants referred to in the situations in which they are grown. Injudicious use of manures often causes foliage to turn yellow. Very hard water has a similar effect. The blackish slime on the soil often arises from keeping the house close and moist.

TOMATOS DISEASED: *H. White.* The fruits are affected by the black-spot fungus, Cladosporium lycopersici. Cut off and burn all affected fruits, and apply liver-of-sulphur at the rate of half-an-ounce in a gallon of water, by means of a syringe, repeating the dressing in a fortnight.

VINES: *Great Scott.* The Vine is attacked by the disease called Brunissure. Collect and burn diseased leaves, and give the soil a good dressing of lime in December or January. *G. M.*

WATER-MELONS: *A. H.* The plants want a firm, loamy soil, and no more water at the root than other sorts of Melons. Their chief requirement seems to be long-continued ardent sunshine. In southern Europe, Melons are planted thinly among the Maize, without much preparation of the soil; in these islands we can afford the plants all that they require, with the important exception of sunshine.

COMMUNICATIONS RECEIVED.—F. W. O.—W. H.—M. Buysmann—Dr. Henry—Sutton & Sons (with thanks) —*Indian Review*—G. B.—J. R. J.—F. de Laet, Contich. —Ch. Vuylsteke, Ghent.—H. Correvon, Geneva.—W. Barbey, Valfeyre, photograph, with thanks.—G. M.—G. N.—A. B. McD.—A. H.—R. N.—G. A. N., Madras.—J. O.—C. H. P.—G. B.—A. P.—W. J.—O. T.—A. & N.—G. H. C.—W. G.—H. Fife.—H. Pearson.—D. Ross.—F. H.—J. G. & S.—D. T.—E. N.—L. Squibb.—J. A. J.—M. S.—J. D. G.—C. H. P.—A. R. B.—J. H.—R. P. B.—P. Barr.—H. M.—J. E.

CATALOGUES RECEIVED.

BULBS.

T. METHVEN & SONS, 15, Princes Street, and Leith Walk, Edinburgh.

COOPER, TABER & CO., LTD., 90 & 92, Southwark Street, London, S.E. (wholesale).

JAS. VEITCH & SONS, Ltd., Royal Exotic Nursery Chelsea, Coombe Wood, Slough and Feltham.

MISCELLANEOUS.

JAS. VEITCH & SONS, Ltd., Hardy Trees, Shrubs, Conifers, &c.

GARDENING APPOINTMENTS.

MR. THOMAS FOX, for 4 years Foreman in Arundel Castle Gardens, as Gardener to Sir MARTIN GOSSELIN, The Mansion, Blakesware, Ware, Herts.

Mr. THOMAS PHILLIPS, for nearly four years Gardener to C. T. BOAN, Esq., at Bignell House, Bicester, Oxon, as Gardener and Farm Steward to G. A. HODGSON, Esq., Smallwood Manor, Uttoxeter, Staffordshire.

Mr. JOHN B. H. LOWE, for three years Foreman in the gardens of the Right Hon. Earl DE GREY, Coombe Court, Kingston-on-Thames, as Gardener to Sir WILLIAM VINCENT, Bart., D'Abernon Chase, Leatherhead, Surrey.

Mr. JOSEPH SMITH, late Gardener at The Cedars, Gateshead, as Gardener to Mrs. CLEGG, Priory Park, Ulverston.

Mr. G. F. WELHAM, for the last 11 years Gardener at Rendlesham Hall, Woodbridge, has been appointed Gardener to G. H. GARRETT, Esq., Alde House, Aldeburg-on-Sea.

Mr. F. J. SMITH, late Foreman in the Gardens at Woodside, as Gardener to A. SWINGLER, Esq., Smalley Hall, Derby.

Mr. JOHN G. WILSON, nearly three years Foreman in Eshton Hall Gardens, and previously at Broxmouth Park, as Gardener to Sir T. M. S. PILKINGTON, Bart., Chevet Park, Wakefield, Yorkshire.

Mr. J. PLATT, late Foreman in the Gardens at Dropmore, as Gardener to W. P. WETHERED, Esq., Blounts, Marlow, Bucks.

Mr. A. THOMAS, for two years Gardener to the late A. H. NEWTON, Esq., Potterspurg Lodge, Stony Stratford, Bucks, as Gardener to Lord PENRHYN, Wicken Park, Stony Stratford, Bucks.

Mr. JOHN WILSON, for the past three years Foreman in the Gardens, Eshton Hall, Gargrave, also at Broxmouth Park, as Head Gardener to Sir Thomas Pilkinson, Chevit Park, Wakefield.

THE

Gardeners' Chronicle

No. 816.—SATURDAY, AUG. 16, 1902.

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SOME STRAWBERRY BOOKS.

THERE has just been published in the series of handbooks of practical gardening, edited by Harry Roberts, a volume entitled, *The Books of the Strawberry*, by Edwin Beckett. This will, no doubt, be noticed by some properly qualified contributor in due course, and my only object in mentioning it now, is to call attention to the fact that nowhere, so far as my knowledge of horticultural literature goes, is there anything like a bibliography of the Strawberry to be found.

As a mere book collector, it is not, of course, within my province to say anything of the merits of such books from a cultural standpoint, and especially as my hobby is almost exclusively confined to the collection of books on florist's flowers. Yet it is a curious fact that it is almost impossible to take up any definite line without gradually acquiring literary odds and ends quite outside the range of one's original intention. It therefore happens that my library contains quite a large number of books and pamphlets on this popular fruit, and the recent appearance of Mr. Beckett's book has reminded me of others that I am acquainted with only by name.

In briefly placing on record what may be called elementary notes for the formation of a Strawberry bibliography, it is only proper to add that there may be many omissions from the list given in this article. I do not pretend to have any special knowledge of the subject, and these notes are therefore to be considered as only a contribution to what may be a very much wider subject.

I will deal firstly with books that have been published in England, for apparently they occupy the post of honour so far as numbers are concerned. The earliest in my collection is called *A Treatise on the Improved Culture of the Strawberry, Raspberry, and Gooseberry*, by Thomas Haynes, published in 1812. It is a volume of some pretentions, for it is 10½ inches by 6½ inches in size, contains over 100 pages, is bound in stout boards, and was published at half-a-guinea; it is printed in large, clear type, but does not contain any illustrations. The next bears date 1847, and is a small cloth-covered volume of 126 pages, forming one of a series known as the "Gardeners' Monthly Volume;" its title is *The Strawberry: its Culture, Uses, and History*, by George W. Johnson and Robert Reid. Unlike the first-named, this little book is somewhat comprehensive, for its contents include History, Botanical Characters, Chemical Analysis, Varieties, Modes of Propagation, Soil, Situation and Manures, Open-ground Culture, Forcing, Disease, and Insects. Keeping as nearly in order of date as possible, for some are without dates of publication, comes a pamphlet by George McEwen, Superintendent of the Garden of the Horticultural Society. The title is *Fruit Culture: or the Culture and Forcing of Fruits.* This is an illustrated pamphlet in limp cloth covers of thirty-eight pages, and its title is not so restrictive as it might be, as it is devoted solely to the Strawberry.

It is not easy to say at what period the next one appeared for the reason already stated. *Culture of the Strawberry as practised by the author, showing How to obtain early and large crops off a small piece of ground*, by James Cuthill, F.H.S., &c. This is quite a small pamphlet, being only 6½ × 4 inches, and containing thirty-one pages; there are no illustrations. Another, almost identical in size, but containing twice as much literary matter appeared in 1880. This was called *Strawberries all the year round, an Essay on the Cultivation of the Strawberry in the Open Air and under Glass*, by William Hinds.

A paper-covered pamphlet, which judging by the pagination seems to have formed part of a larger work, was written in 1882 by D. T. Fish, called *The Raspberry and Strawberry: their history, varieties, cultivation, and diseases.*

In 1891, a little manual of 66 pages in limp green cloth was compiled by W. H. Harrison, M.A., of Shrewsbury; the title of this was *Strawberries: how to Grow them, how to Protect them, how to Gather them, and how to Eat them.* An idea of the contents is well conveyed by the title.

How to grow the Strawberry should have been mentioned before the last, for I see its date is 1888. This was published at the office of the *Horticultural Times*, and contains essays by several writers, of whom S. T. Wright, C. Collins, and Richard Dean are specially mentioned.

The next two are undated, the first to be named being No. 1 of the Salisbury Series of "Garden Produce Handbooks," entitled *Strawberry Culture*; and the other a stiff, cloth-covered volume, entitled *The Strawberry Manual: an Illustrated Up-to-date Work on the Strawberry*, by Laxton Brothers, Bedford. The contents of this book comprise, among other chapters, Origin and History, Hybridisation, Seedlings, Sites, Soils, Manures, and much other matter pertaining to the growing, forcing, and marketing of the Strawberry.

Hobbies, Ltd., have recently issued a small series of illustrated gardening pamphlets; one of these, it should be mentioned, bears the title of *Hobbies' Strawberry Guide.*

The Book of the Strawberry, by Edwin Beckett, is the last of these English treatises, and is a neatly printed, illustrated, cloth-bound volume, with chapters also on the Raspberry, Blackberry, Loganberry, and Japanese Wineberry, principally dealing with the various phases of cultivation of these fruits, that devoted to the Strawberry occupying the major portion of the book.

We now turn to works by French authors, and the first of these would seem to be the oldest of all, as well as the most important in size; it was published in Paris in 1766, and although a copy does not appear to be in the Lindley Library, nor yet in the excellent library of the Massachusetts Horticultural Society, I find the book quoted in one of Comte Lambertye's works on the Strawberry, as follows:—*Histoire naturelle des Fraisiers, par Duchesne, 1 vol. in 18 de 430 pages, et compris 116 pages de notes.*

Certainly by far the most comprehensive and bulky volume I possess is *Le Fraisier, sa Botanique, son Histoire, sa Culture, par le Comte Léonce de Lambertye*, who appears to have almost exhausted the subject. My copy, a large, paper-covered volume, was a presentation copy by the author to the late Dr. Robt. Hogg. There are nearly 400 pages in the book, which is divided into three main divisions, viz., botany, history, and culture. These are again subdivided, and the scope of the work is so extended that one cannot even briefly enumerate the many subjects dealt with in a short notice like the present. In short, the collection of the materials for this volume must have been almost the work of a lifetime. Comte Léonce de Lambertye also issued a smaller work on the same subject, entitled *Le Fraisier, sa culture forcée par le thermosiphon*; and if I am not mistaken a third one called *Le Fraisier, Culture en pleine terre suivie d'un choix des meilleures variétes à cultiver*; but these two latter named ones I have not seen, and only know of their existence by reference to M. Goin's book catalogue. The same remark applies to another, the title of which is *Les bonnes Fraises, manière de les cultiver pour les avoir au maximum de beauté, suivi d'un calendrier des travaux à faire dans une Fraisière pendant les 12 mois de l'année, par F. Gloede.*

I observe in the Catalogue of the library of the National Horticultural Society of France a little pamphlet, *Notice sur la Culture des Fraisiers*, by Pierre Valette, a copy of which I once had; but regarding it in the light of something little better than a trade catalogue, I am afraid that it was destroyed with a lot of similar matter some time ago.

Le Fraisier, traité de sa Culture Commerciale suivi de quelques Conseils sur la Culture d'Amateur, by Th. Mulié, is a small *brochure* of about a hundred pages, containing a few illustrations in black and white; it is purely cultural, and its author deals with the subject from a practical point of view.

No doubt, many of the readers know the series of gardening books that are being issued

by Octave Doin, of Paris, under the title of *Bibliothèque d'Horticulture et de Jardinage*. They are handy little cloth-covered volumes by French writers on various gardening subjects. One of these is entitled, *Les Fraisiers*, by A. Millet, and contains upwards of fifty illustrations. The scope of this little volume is by no means restricted, for it goes back a long way in the origin and history of the Strawberry; then it deals with its culture in a variety of ways, and for many purposes, and very fully deals with the diseases and nomenclature.

If the Strawberry has been thus liberally dealt with by English and French horticultural writers, it has no doubt been equally well treated by German authors; but of old German gardening books I have little or no knowledge, and can only speak of a few modern ones that have come under my notice.

Mr. F. C. Heinemann has published a series of gardening books, which include one that deals with our present subject. Its title is *Die Kultur der Erdbeeren im freien Lande und im Topfe sowie das Treiben derselben, von F. C. Heinemann*, &c. Then in a similar series, but from a different publisher, we get *Die cultur und Treiberei der Erdbeere und ihre Verwerthung mit 10 in der Text gedruckten naturgetreuen Abbildungen, von Max Jubisch*, &c. This bears date 1891.

In 1892 another German Strawberry book was published, not perhaps containing so much literary matter as the preceding, but a little more freely illustrated so far as the Strawberry is concerned, the varieties being almost without exception German. The title of this is *Die Erdbeere ihre Eintheilung, Beschreibung und cultur im Freien, sowie unter glas (Treiberei) nebst 19 Abbildungen zum Anbau empfehlenswerther sorten, von Paul Möschke*, &c.

Yet another one of similar pamphlet form has to be noticed, for all these German treatises are scarcely worthy of the designation of book. *Das Erdbeerbuch, Anzucht, Pflanzung, Pflege und sorten der Erdbeere für Gross und Kleinbetrieb und die Verwertung der früchte als Dauerware, von J. Barfuss.*

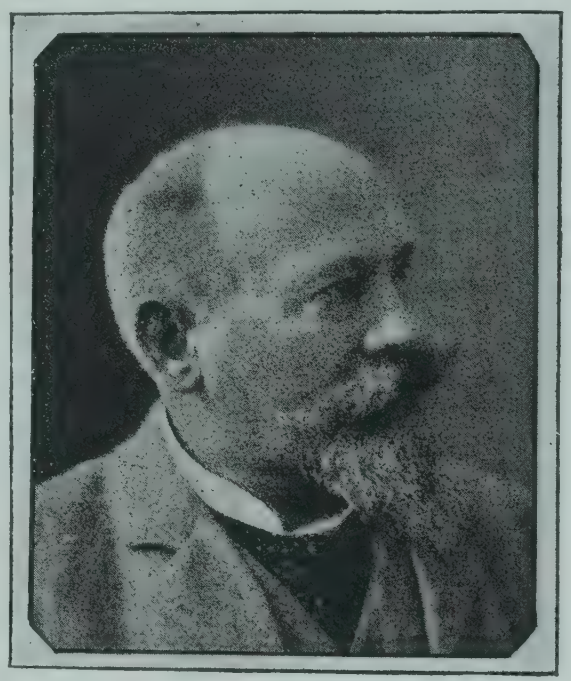
Judging by the price, for I have not seen the book itself, it would appear that by far the most important and exhaustive of recent German books on the Strawberry is one entitled *Das Buch der Erdbeeren, Praktische Anleitung zu ihrer kultur im freier Lande wie auch zum Treiben in Kästen und Häuser nebst Beschreibung der Arten und Varietäten, von Franz Goeschke.*

Before concluding, we must take a hurried glance at American contributions to the bibliography of the Strawberry, several of which are in my collection, but there are some others. Roe's *Success with Small Fruits*, deals with the subject, but of course not so exclusively as most of the independent treatises heretofore named. Then I find in the Catalogue of the Massachusetts Horticultural Society, *Complete Manual for Cultivation of the Strawberry*, by R. G. Pardel, published in New York, 1863; *The Strawberry and its Culture*, with descriptive catalogue, by J. M. Merrick, published in Boston, 1870. In Robert Buchanan's *Culture of the Grape and Wine Making* there is an Appendix on the cultivation of the Strawberry by N. Longworth, and this appeared so long ago as 1852.

Among those, however, that I have, is *How to Grow Strawberries for Farmers, Village People, and Small Growers*, a book for beginners, by T. B. Terry. This is a compact little volume of 144 pages, brimful of practical matter, and illustrated, not only with pictures of different varieties, but also with various appliances incidental to the culture of the Strawberry.

Very similar in style and get-up generally, is *The Illustrated Strawberry Culturist*: containing the history, sexuality, field and garden culture of Strawberries, forcing or pot culture, how to grow from seed, hybridising, &c., by Andrew S. Fuller.

Lastly, *Bulletin* 134 of the Cornell University Horticultural Division, by C. E. Hunn and L. H. Bailey, is devoted to "Strawberries Under Glass," and with that the present article must close, for with regard to books, pamphlets, or treatises of any sort that may have appeared elsewhere, I have no knowledge, and must leave any further extension of the subject to those who are sufficiently interested and can supply the needful material. At any rate, as a first contribution to the bibliography of a favourite and deservedly popular fruit, I think the present article may be of service, hence my desire to place what I know of it on permanent record in the columns of the *Gardeners' Chronicle*. *C. Harman Payne.*



LUDWIG MÖLLER.

LUDWIG MÖLLER.

ON July 1 of this year occurred the twenty-fifth anniversary of the day on which Ludwig Möller, of Erfurt, began his public career as editor of the well-known *Deutsche Gärtner Zeitung*, and we heartily congratulate him on the success he has achieved in the course of those years. A native of Mecklinburg-Schwerin in North Germany, he had not the advantage of a superior education, having only attended a village school, and later on for a short time that of a small country town; but he was fortunate enough to find the means of laying the foundation of his extensive knowledge in all branches of horticulture in a large private garden, where he was apprenticed. At the end of his apprenticeship, and after having worked as journeyman and head gardener in Hamburg and Berlin, he spent many years travelling from one part to another of Germany, working for a time in several places. By these means he greatly added to his knowledge of the condition of horticulture in his country.

He then occupied for ten years the post of head gardener in a large private establishment at Barmen, and during that time he was elected President of the German Gardeners' Union, and the *Deutsche Gärtner Zeitung* was founded on July 1, 1877, as the organ of that Society. Ludwig Möller has continued during a quarter of a century in the forefront of horticulture in Germany as editor of the same journal. Under his direction the Society from a very enfeebled condition became prosperous and flourishing, so much so that he had to give it his whole attention, for which purpose he changed his residence to Erfurt.

In 1885 he gave up his connection with the Society, and thenceforth the paper has been carried on entirely by him, the title being changed to *Möller's Deutsche Gärtner Zeitung*. As such he has ever since used his utmost endeavours by all means in his power to help the advance of horticulture in Germany. His paper has been, especially of late years, extensively read and its illustrations admired, not only within but also beyond the borders of that country. Besides his many-sided affairs, Ludwig Möller also takes a keen interest and a part in the municipal affairs of his town. We trust he may be spared for many years to come to continue his activity in the interest of horticulture.

NEW OR NOTEWORTHY PLANTS.

KALANCHOE KIRKII, N. E. BROWN (*n. sp.*).

THIS is a new and handsome species, which has flowered very freely at Kew during the spring of this year, producing large corymbose cymes of brilliant, orange-scarlet flowers. It was introduced from some part of Africa by the Hon. H. W. Fitzwilliam, of Wentworth Woodhouse, Rotherham, in 1893, and is now cultivated under the erroneous name of K. coccinea. On comparing it with specimens in the Kew Herbarium, it appears to be the same as a plant first collected by Sir John Kirk, in 1858, near Shupanga in Portuguese East Africa, and afterwards found by Meller, in 1861, on the Manganja Hills in Nyassaland, which Britten, in the *Flora of Tropical Africa*, vol. ii., p. 395, has combined with a totally different plant from the Congo, under the name of K. coccinea var. subsessilis. The plant here described and the Nyassaland plant have broad, oblong, acute sepals, whilst the Congo plant has long, narrowly lanceolate-attenuate sepals. The typical K. coccinea is a native of Angola, and has narrowly lanceolate-attenuate sepals like the Congo plant, which latter scarcely differs from the type, except in being rather more densely pubescent; both are quite different from the Nyassaland plant, which I take to be identical with the plant for which I propose the name of K. Kirkii.

Stem 2 to 4 feet high, 5 to 10 lin. thick at the base, simple or branched, terete, leafy to half or three-quarters the way up, more or less densely glandular-pubescent with short spreading hairs. Leaves opposite, softly fleshy, green, unspotted, pubescent with spreading hairs. Lower and middle leaves spreading-decurved, petiolate; petiole ½ to 2 inches long, 3 to 5 lin. broad and thick, channelled down the face, with obtusely rounded margins to the channel; blade 1¾ to 4½ inches long, ¾ to 3½ inches broad, about ⅛ inch thick, oblong, ovate, or lanceolate, very obtuse or obtusely pointed, cuneate or obtuse at the base, rather irregularly crenate-dentate, more or less curved upwards along the sides. Uppermost leaves, linear-cuneate, nearly or quite entire, obtuse, ascending or incurved. Cymes about 3 to , arranged in an irregular corymb 3 to 6 inches broad; they have peduncles 2 to 6 ins. long, are moderately compact, about twice forked, many-flowered, and clothed with a more or

less dense glandular pubescence of short spreading hairs. Bracteoles 1 to 2 lin. long, ¼ to ½ lin. broad, subulate, pubescent. Pedicels ½ to 2 lin. long, pubescent. Sepals 2½ to 4 lin. long, 1 to 1¾ lin. broad, free to the base, oblong, acute, erect, their margins almost touching, green, glandular-pubescent. Corolla-tube ½ in. long, slightly inflated at the base, yellowish-green, thinly pubescent with minutely gland-tipped hairs; lobes spreading, 2½ to 3 lin. long, 2 to 2½ lin. broad, elliptic, subacute, minutely apiculate, scarlet-orange, red on the back. Stamens very variable, 4 to 8, in one or two series, all with anthers, or one series without anthers, included. Hypogynous glands ¾ lin. long, linear-filiform, acute, greenish. Carpels 3 to 4 lin. long, erect, tapering into a very short style, green; stigma simple. *N. E. Brown.*

CLEOME SPECIOSA, *Rafin.*

Cleome speciosissima, Deppe, from Mexico, is not rare in the gardens of Europe, although it is not so fine or so hardy and useful as the C. speciosa, the true species from Rafinesque, wild in the Northern States of America. This splendid garden plant, one of the greatest wonders in the wonderful kingdom of Nature, is now in full bloom with me; and as there is no one else at Naples who can praise it as I can do, I will describe it as it deserves. Every gardener in your country should grow it; it is more wonderful and graceful than most garden plants, and it flowers here all the summer and autumn, and seems never worn out. It is a tall, nicely-branching, evergreen plant, perennial here, with bright green, divided leaves, and in all its parts rampant, but not troublesome. The fine and interesting flowers are united in loose (not dense) lovely spikes, bright purple, with very long purple stamens and pistil; they open in the evening, and remain in full glory during the following day if the sun is not too troublesome, as it is here at Naples, where we therefore cultivate the plant in a shady or semi-shady place. My white variety is yet more handsome, and if better known would be largely cultivated; the flowers are pure white, with snow-white stamens and yellow pollen, whilst the pollen of the type is more brownish or greyish. Cleome speciosa and its white variety are not only the hardiest species known, but also the finest; not too tall, always in bloom from spring to autumn, elegant and beautiful, they may be classed amongst the best of the decorative flowers that we have. The white variety I received from the United States amongst the type. It is not a native of Naples, but it is perhaps cultivated there, and so bloomed first in the Old World. Both the species seeded here freely, but I think the white kind will not come true from seed. *Ch. Sprenger.*

LÆLIO-CATTLEYA ADOLPHUS VAR. SUPERBA.

ON the occasion of the meeting of the Royal Horticultural Society's Committees, at the Drill Hall, on the 5th of the present month, a very attractive Lælio-Cattleya × Adolphus var. superba (fig. 37), having as parents Lælia cinnabarina and Cattleya Aclandiæ, was shown by Messrs. Charlesworth & Co., of Heaton, Bradford. The flowers have a waxy appearance; the sepals and petals are of a bright reddish Indian-yellow colour, evenly spotted with ruby colour; the front of the lip and tips of the side-lobes are purplish-rose, and there are lines of a yellow tint on the disc. The habit of the plant is that of Cattleya Aclandiæ. It was awarded a First-class Certificate.

ORCHID NOTES AND GLEANINGS.

BURFORD, DORKING.

THAT there are good seasons and bad seasons for Orchids generally, and that in some years certain of the larger genera thrive and flower better than usual, has long been recognised to be the case. At Burford, in the wonderful collection of Sir Trevor Lawrence, Bart. (gr., Mr. H. White), and which is admittedly the finest representative collection of Orchids ever got together, the current season has been found to be a good one for all classes of Orchids. The Cattleyas and Lælias especially have attained greater vigour than usual, and have flowered very satisfactorily. With these as with the Odontoglossums, the culture in leaf-mould has been distinctly beneficial, and that experience coming from Burford, where innovations are looked on with suspicion, and proved with caution, is proof positive that the use of leaf-soil as potting material for Orchids may be undertaken with good results. According to Mr. White, careful watering is the chief thing to be observed to ensure success. At this season, when the flowers of the large batches of showy Odontoglossums, Cattleyas, and Lælias are least in evidence, it gives a better opportunity of seeing the many curious and pretty species from all parts of the world, generally denominated "botanical," and for which the collection is noted.

In the large warm-house, with its fine collection of specimen Cypripediums on one side, including the coveted C. Stonei platytænium formerly illustrated from this plant in the *Gardeners' Chronicle*, suspended overhead are a large number of singular Bulbophyllums, Cirrhopetalums, and Megacliniums, from the gigantic B. grandiflorum, with its hooded flower, looking at a distance like the pitcher of a Nepenthes; and the remarkable B. longisepalum, with its purple-mottled flowers, resembling the head of some long-beaked bird, to the amusing B. barbigerum, a fine plant of which is in flower, its feathery labellums constantly in motion. The large-bulbed Bulbophyllum Hamelini, which long refused to grow strongly, was recently conquered, but still persisted in its waywardness by sending its very strong growth through the bars of the raft to the back, and in a position where it must be strangled, unless the wood is cut away. The singular B. inflatum is in flower, the inflorescence looking at a distance like a little Gherkin Cucumber, its body being inflated, and the hairy pale green flowers regularly set thereon. B. Lobbii siamense has cream-white flowers striped with rose, and an odour like a fresh-cut Cucumber; and various others are in bloom, as also the curious Thelasis khasyana, and the pigmy Eria extinctoria, whose pretty white and rose flowers, borne on hair-like stems, seem disproportionately large to the size of the plant.

In most of the houses some interesting, pretty, and rare Orchids are in bloom, among those noted being the remarkable Acineta Hrubyana, Stanhopea-like in growth, and

FIG. 37.—LÆLIO-CATTLEYA ADOLPHUS VAR. SUPERBA.

sending from the bottom of the basket an inflorescence bearing two large, fleshy, cream-coloured flowers marked with purple; Lycaste Dyeriana, with singular pale green flowers; a nice batch of the blue Bollea cœlestis, Pescatorea Klabochorum, and others of that section of Zygopetalum, including a large mass of Warscewiczella discolor, with many flowers; a few Oncidiums of the cool-house section, among which is a very beautiful form of O. Forbesii, the chief part of the flower being clear yellow, on which are prettily arranged chestnut-brown markings; O. candidum, formerly known as Palumbina candida; Dendrobium infundibulum, of the dwarf highland Indian type, only a few inches high, but bearing very large white flowers; Stanhopea connata, orange and purple, and next to S. tigrina, one of the showiest; plants of the rare and singular Sievekingia Reichenbachiana, and Polycycnis Lehmanni, together with another probably new species, showing an inflorescence with singular hairy buds; Pleurothallis saurocephala, with racemes of flowers like beetles; Promenæa xanthina and P. macroptera, Cirrhæa viridi-purpurea, some Gongoras, and a large number of other singular species.

The Epidendrums at Burford always furnish interesting things in bloom; at present two of the prettiest are E. elongatum, with dense head of rose-coloured flowers, and E. pterocarpum, a singular species imported with E. Linkeanum. The central stage of Sobralias has some in flower, including S. xantholeuca, S. × Veitchi, and S. Lowii.

The Masdevallias are in their accustomed vigour, and some in bloom, although the greater part of the brilliant show of flowers on the varieties of M. coccinea has passed. Some unnamed hybrids are in bloom, and a showy one, named M. × Ferrieriensis (Veitchiana × coriacea), with large, orange-coloured flowers, densely spotted with purple; also a fine mass of Masdevallia muscosa, whose lip springs up when the motion of an insect over its surface is imitated; Pleurothallis macroblepharis, like a flight of gnats, and other singular Pleurothallis.

The Dendrobiums are making extra fine growths at Burford this year. The unique D. Wiganiæ xanthocheilum with bright yellow flowers, raised at Burford, proves to be an excellent grower; and D. × illustre is forming a very stout new pseudo-bulb. With this as with some other wide crosses, whose earlier stages do not show much indication of one of the parents, Sir Trevor Lawrence remarks that high cultivation reveals the hidden features in a marked degree.

The Odontoglossums still maintain their vigour, and some are in flower, and the collection of hybrids have some remarkable crosses in bloom, notably Epi-Lælia × between Epidendrum vitellinum and Lælia tenebrosa, the orange and purple flowers displaying both parents, but not in a manner to warrant it being grown, except as a curiosity; Epi-Lælia ×, between L. cinnabarina and E. fucatum, is also singular. Among showier hybrids in bloom is one between Cattleya granulosa Schofieldiana and C. Warscewiczii, resembling C. × Atlanta, but with strong indications of C. granulosa in the lip; Sophro-Lælia × Chamberlainiana, a brightly-coloured hybrid; Sophro-Cattleya Calypso, and other pretty varieties.

THE PLANT-HOUSES

contain a fine display of flowers. Anthurium Scherzerianum, A. Andreanum, and the Burford hybrids and seedlings of them, are showy, and exhibit great variation of colour and form. Begonias, both tuberous and shrubby, are good, one seedling between B. argyrostigma or a hybrid of it and B. corallina being fine both in foliage and flower. The hybrid Streptocarpus here grow splendidly, the leaves of many being a foot in length, and the handsome flowers approaching in size some of the earlier Gloxinias.

THE GARDEN.

Naturally so beautifully situated, with the shrub-clad, steep side of Box Hill close behind it, is a repository of choice flowers, new ones not up to the best standard, not being suffered to remain longer than it takes to show their defects. Roses have been specially fine this year after they began to bloom, and especially the Crimson Rambler, and single and semi-double species which are much used as pillar bushes, and to cover arches. A bed of the pink "Hermosa" Rose is a mass of bloom, and makes one of the prettiest beds in the Rose garden. The best old and some new Cannas are coming into flower; a large batch of superb Iris Kæmpferi displays some new combinations of colour; the quantities of Crinum Moorei and C. Powelli, here thoroughly acclimatised in the open garden, are showing well for bloom; the Alstroemerias well in flower, the oldest, A. aurea, being a mass of bloom. The ornamental basin is well furnished with flowers of the now favourite Water-Lilies, of which Nymphæa purpurascens is the darkest reddish-purple; N. gloriosa, one of the brightest rosy-crimson; N. sulphurea and N. chromatella, pale yellow; and N. Ellisiana, and the varieties of N. Marliacea, all good.

While in most parts of the country gardeners are complaining of the large number of insect pests, Sir Trevor Lawrence remarks on the light visitation of Burford by these undesirable garden visitors this season. Probably attention to spraying when the first of the aphis, &c., appeared in the early part of the year has had much to do with their absence in the latter part. Mr. W. Bain, the gardener at Burford for so many years, is also a very strict disciplinarian in the garden, both indoors and out, keeping everything in excellent trim, and never allowing useless growth to crowd the specimens and form a harbour for insects and their embryos, as is the case where good order is not so well maintained.

PLANT NOTES.

ODONTADENIA SPECIOSA.

As a stove flowering plant, the above when well grown and bloomed is one of the handsomest and richest in colouring of any of our stove plants. Introduced by Purdie from Trinidad, and first flowered in this country by Messrs. J. Veitch & Sons in 1854, under the name of Dipladenia Harrisii. The plant is now seldom seen, being one of those subjects like the Dipladenias that require special and high culture before success can be attained. The plant is now in perfection of bloom at the Botanical Gardens, Birmingham, festooning the roof of the stove with its long Dipladenia-like branches. Its leaves are large and lance-shaped, of a light green, almost a lavender colour. Its flowers are formed in great golden corymbs at the end of the branches, and where these depend from the roof in rich clusters as they did on the occasion of my visit a few days ago, the effect will not easily be forgotten. It succeeds best when planted out, but at Birmingham it is grown in a large pot. It delights in plenty of heat and light, and the compost that suits it the best is the same as recommended for the Dipladenia. *Owen Thomas.*

REMARKS ON THE FRUIT CROPS.

(*See Summary & Tables, ante, pp. 69 & 72—77.*)

(*Continued from p. 94.*)

ENGLAND, E.

CAMBRIDGESHIRE.—There was a very good show of fruit in early spring, but the severe frosts of May 13 and June 9 damaged the greater part of it. *R. Alderman, Babraham Gardens, Cambridge.*

HUNTINGDONSHIRE.—Apricots and Peaches are good, but late. Apples and Cherries are under average, owing to cold, wet weather early in June, and to severe frost on June 10. Pear-trees are carrying good crops, and such varieties as Fertility, Williams' Bon Chrétien, and Pitmaston Duchess, are heavily laden with fruit. Gooseberries and Currants are good. Strawberries have yielded heavy crops of good fruit, Royal Sovereign, Leader, Mentmore, Trafalgar, Fillbasket, and Waterloo, we find very good and reliable varieties. *F. W. Seabrook, The Gardens, Ramsey Abbey.*

ESSEX.—The frosts and low day temperatures experienced in April and the early part of May spoiled as fair and promising prospects of Pears, Plums, and Cherries as any we have had in recent years. The prospect of Apples was no less promising; but from the same cause we shall only have an average crop. Gooseberries, Strawberries, and Raspberries were plentiful and good. *H. W. Ward, Lime House, Rayleigh.*

—— The fruit crop on the whole, owing to late frosts and cold winds, is a failure. We had a splendid show of bloom. *Charles W. Hodges, Havering Park, Romford.*

LINCOLNSHIRE.—In the spring the fruit trees looked most promising, there being quite a wealth of blossom; but owing to N. and N.E. winds and frosts, the crops are only very moderate. Red and Black Currants have suffered very severely from blight; in many small gardens the leaves have all fallen off. Spraying the bushes with quassia stayed the pest, and saved part of the crop here. *H. Vinden, Harlaxton Manor Gardens, Grantham.*

—— Lord Suffield is about the only variety of Apple bearing more than an average crop. Victoria and Rivers' Early Plums have splendid crops. *J. Coward, Haverholme Priory Gardens, Sleaford.*

NORFOLK.—Although most fruits are under the average, there is not the scarcity there was in 1901. Many varieties of Apples and Pears have good crops, others a poor one. Quality will, I think, be high. *E. C. Parslow, Shadwell Court Gardens, Thetford.*

SUFFOLK.—Peaches, Nectarines, and Apricots have good crops. Apples set very freely, and thinning of the fruits would be a means of obtaining larger fruits. Pears, Plums, and Cherries suffered from frost whilst in bloom. *J. Wallis, Orwell Park Gardens, near Ipswich.*

—— Strawberries have this season been very fine, both as to crop and size of fruits, the variety Royal Sovereign standing out well along with Sir Joseph Paxton. Raspberries are exceptionally fine in fruit, and the crop enormous. Apples are an average crop. On the younger and cleaner trees the crop is good, and the fruit promises to be of large size, and free from maggots. Pears are very few, but clean and good. *C. Foster, Henham Hall Gardens, Wangford.*

MIDLAND COUNTIES.

BEDFORDSHIRE. — The most unfavourable season I have yet experienced here. From

May 1 to May 15 we had eleven sharp frosts, when on three occasions the temperature fell to 23° Fahr., and on one to 22° Fahr. The total frosts for the period exceeded all we had in the whole of March, and nearly equalled those of the whole of February. Great destruction of blossom and of young fruits (in Gooseberries) followed. Again, from May 30 to June 17 there were only three days without rain, and this, accompanied by low night temperatures, not only checked advance, but resulted in a widespread attack of fungoid diseases. Strawberries were over a month later than usual in ripening, and Gooseberries were a complete failure. *R. Lewis Castle, Woburn Fruit Farm, Ridgmont, Beds.*

Buckinghamshire.—The crops of fruit in this district vary considerably. In some places an orchard will be found in which the trees generally are carrying a good crop of fruit, whereas in another there is but a short crop. The standard Victoria Plum-trees seem to have withstood the variable and inclement weather better than most other kinds grown on walls. In some places the blight has seriously affected Apple and Plum-trees — indeed, so much so, that the quality and finish of the fruit will be impaired. The crops of Peaches and Nectarines are most abundant, and the trees are vigorous where they are free from blight and red-spider. *Geo. Thos. Miles, Wycombe, Bucks.*

—— The fruit crop in South Bucks suffered greatly from the prolonged cold weather during the month of May. Apples are generally an average crop, and in some places a heavy one. Here the best early varieties are Lord Grosvenor and Ecklinville; and Gloria Mundi, Golden Noble, Wellington, and Lane's Prince Albert, the best amongst late varieties. Pears are a poor crop, except the varieties Durondeau and Beurré Diel. Cherries are scarce and poor, except on walls. The Strawberries were late and soon over, and the frost on May 10 cut off all the first blooms on Royal Sovereign. *Chas. Page, Dropmore Gardens, Maidenhead, Bucks.*

—— The abundant display of bloom encouraged hopes of a good general crop of fruit, but the late frosts destroyed these, especially in the Apple and Pear crops. We have fewer Apples and Pears than we have had for many years past. Raspberries suffered badly from the severe weather in May. There is a heavy crop of Gooseberries, and the Gooseberry sawfly caterpillar and red-spider have not troubled us this season. Strawberries are a good crop, but they are lacking in flavour. Peaches and Nectarines are a good crop, and the trees clean and free from blister, although we had a cold and wet spring. *John Fleming, Wexham Park Gardens, Slough.*

—— We never had a better promise for a good crop of fruit, and never for the last twenty years have we had a worse one. The late spring frosts killed most of the Plum blossom, and the blight destroyed the Apple blossom. What we have left of Apples and Pears will be of poor quality. Taking it altogether this is one of the worst seasons for hardy fruit in my recollection. *Jas. Smith, Mentmore Gardens, Leighton Buzzard.*

Hertfordshire.—In the spring all kinds of fruit-trees, and most varieties, flowered profusely, but the weather in the months of April and May was remarkable for the amount of frost experienced, for hailstorms, and general low temperature, whilst aphis completed the destruction. Plums will be scarce, the best cropped on walls being Rivers' Prolific. The first and finest flowers the Strawberries were mostly destroyed, particularly varieties which have but little foliage and throw out the blooms, as does Waterloo. *Geo. Norman, Hatfield House Gardens.*

Warwickshire.—The first fortnight in May proved disastrous to the fruit crops in this and many other gardens and orchards around, especially on the morning of the 14th, when we registered 10° of frost. On the higher ground, growers have been more fortunate, and in several cases an average crop of Plums, Apples, and Pears, will be harvested. Amongst Apples that are carrying fruit may be noted—*Culinary:* Northern Greening, Lord Suffield, Lord Grosvenor, Mank's Codlin, Peasgood's Nonsuch. *Dessert:* Mannington's Pearmain, Lord Burghley, Worcester Pearmain, and Sturmer Pippin. All the early Strawberry-flowers were cut off by frost, and the varieties that have done the best are Sir Joseph Paxton, Royal Sovereign, President, Waterloo, and Leader. *A. D. Christie, Ragley Gardens, Alcester.*

Fig. 38.—view of sandringham house. (see p. 118.)

—— Apples are a very light crop, and the trees at one time looked badly owing to the wet, cold weather, but they are recovering. Pears are very much under average except on walls; Plums and Damsons are almost a failure, except wall trees, and those were scalded owing to sudden bursts of sunshine—still, they will be an average crop. Peaches on warm walls have improved greatly since the weather got more genial, and the trees have a healthy look; as also Apricot, the fruits on which swelled up grandly. *J. Rodgers, Charlecote Park Gardens, Warwick.*

—— In this part of North Warwickshire a cold spring, followed up by a succession of frosts, completed the destruction of a very splendid and healthy show of out-of-door fruit blossom. Apples are worse than a partial failure, although trees are to be met with which have a full show of fruit. Pears on standards are practically barren, but upon walls which had some protection a few fruits may be seen. Plums are in similar form, whilst Cherries may be more favourably spoken of. Peaches and Nectarines on outdoor standards, after a splendid show of blossom, have no fruit. Small fruits have also been badly hit, especially red and black Currants. Strawberries have been the crop of the year, both as regards quantity and quality, but were so cheap as to barely pay for their gathering. The season, so far as it has gone, has been a most extraordinary one, excessive heat and chilling colds following each other in fitful succession. Fruit trees, after being divested of caterpillars, of decayed leaves, and blossom, are now making a vigorous and healthy growth. *W. Miller, Berkswell, North Warwickshire.*

Leicestershire.—The Apple crop in this district is almost a complete failure, Frogmore Prolific, Seaton House, and Warner's King, being the only varieties carrying a fair crop. With the exception of Louise Bonne of Jersey on pyramids, there are no Pears. On the walls there is a better crop of clean fruit, Williams' Bon Chrétien, Nouvelle Fulvie, Glout Morceau, Easter Beurré, Pitmaston Duchess, and Josephine de Malines, are the most abundantly cropped varieties. Gooseberries were much affected by frost, many of the fruits dropping off. Black Currants are a complete failure; red Currants and Raspberries being a moderate crop. Many of the earliest of Strawberries were damaged by frost, which has prejudicially affected the produce. The Codlin-moth on the Apples, and aphis upon the bush fruits, have been most troublesome to contend with. *D. Roberts, The Gardens, Prestwold, Loughborough.*

(*To be continued.*)

OAKS.

FROM Messrs. Fisher, Son, & Sibray, of the Handsworth Nursery, Sheffield, we lately received specimens of various ornamental forms of Oak, which we may arrange under the headings of evergreen, deciduous, and coloured or variegated. For the most part we give the names as supplied us by the senders, for it is not practicable in all cases for us to identify the precise species from the specimens sent, and the forms are notoriously very variable.

EVERGREEN.

Q. Ilex.—Shoots and under surface of the leaves slightly downy; leaves coriaceous, shortly stalked, 4 inches (10 to 11 cent.) long, 2 inches (5 cent.) wide, oblong acute, rounded at the base, margin dividing into broad, shallow, spine-tipped lobes. Stipules caducous, linear, membranous, longer than the petioles. No doubt one of the many forms of Q. Ilex, but the present description applies solely to the specimen before us.

Q. Turneri.—Foliage evergreen, glabrous, dark green above, paler and slightly downy beneath; leaves 6 to 7 inches (16 to 17 cent.) long, 3 inches (7 cent.) wide, oblong acute, tapering at the base into a very short stalk; margin slightly lobed, lobes ascending, broad deltoid; stipules linear acuminate, longer than the stalk. Q. Turneri is considered as synonymous with Q. pseudo-suber, according to Nicholson, but others consider the cultivated Turneri to be a hybrid between Q. cerris and Ilex.

Q. Ilex latifolia.—Shoots stoutish, angular, covered, like the underside of the leaves, with a dense coating of stellate hairs. Leaves coriaceous, sub-orbicular, cordate, with rounded lobes; margin nearly entire, or with a few remote, very shallow, deltoid, spine-tipped lobes; stipules caducous, linear-lanceolate, longer than the very short petioles. A very remarkable form.

Q. laurifolia.—Shoots slender, purplish, covered, like the under surface of the leaves, with cream-coloured down and stellate hairs; leaves very shortly stalked, 3 inches (8 cent.) long, 1¾ in. (4½ cent.) wide, oblong-acute, rounded at the base, with a few short spines at the margins and at the tip. Stipules caducous, linear-lanceolate, longer than the petioles. We do not know if this is really the Q. laurifolia of Michaux.

Q. Fordii.—Young shoots slender, and like the under surface of the leaves, covered with coarse stellate hairs; leaves coriaceous, 2½ inches long (6 to 7 cent.) wide, oblong, rounded, subcordate at the base, margin dividing somewhat regularly into shallow, deltoid, spine-tipped lobes; stipules caducous, membranous, longer than the petioles. Whether this is to be considered as the veritable Q. Fordii of Carrière we hesitate to pronounce. Q. Fordii is considered to be a pyramidal or fastigiate variety of Q. Ilex.

Q. longifolia.—Shoots and foliage glabrous, leaves sub-evergreen (?), 10 inches (25 cent.) long, 3½ inches (9 cent. wide), oblong-acute, tapering at the base into a short stalk; margin dividing into shallow lobes, dark green above, paler beneath; young leaves reddish-brown; stipules membranous, deltoid, acute, shorter than the petiole.

DECIDUOUS OR RARELY SUB-EVERGREEN.

Q. conferta (syn. pannonica).—Shoots robust, covered with purplish shaggy down. Foliage very handsome, sub-evergreen, dark green glabrous above, paler and softly downy beneath, 9 ins. (23 cent.) long, 6 ins. (15 cent.) wide, broadly obovate, margin dividing into shallow rounded lobes, base narrowed into a short petiole; stipules linear, hairy, scarcely so long as the petiole. This S.E. European species formed the subject of a paper by the present writer in the *Transact. Bot. Soc., Edinburgh*, vol. xii., p. lvii.; and also in the *Gardeners' Chronicle*, Jan. 15, 1876, p. 85. A very attractive species, which it is to be regretted is not more often planted.

Q. pedunculata filicifolia (syn. pectinata).—Shoots purplish; leaves glabrous on both surfaces, paler beneath; leaves 13 ins. (33 cent.) long, 3½ ins. (9 to 10 cent.) wide; linear-oblong, with a long terminal acumen, base gradually tapering to a slender stalk 1 inch long, margin deeply irregularly lobed; lobes linear, acute, crenately lobulate. Stipules linear, broad at the base, membranous, nearly as long as the petiole. See *Gardeners' Chronicle*, ii., Nov. 13, 1880, p. 632.

Q. (pedunculata) fastigiata viridis. — Of fastigiate habit; leaves nearly sessile, oblong, obscurely lobed; stipules membranous, linear, slightly hairy, longer than the stalks. See *Gardeners' Chronicle*, ii., xiv., 179.

Q. pedunculata var. heterophylla (Q. Fennesii, Hort.).—Leaves linear, oblong, 10 ins. (26 cent.) long, 2 ins. (5 to 6 cent.) wide, shortly stalked, remotely lobed, lobes deltoid acute, or oblong rounded. Stipules membranous, broad at the base, linear glabrescent, longer than the petiole. A very handsome form of Q. pedunculata.

Q. macrophylla. — Leaves sub-evergreen, glabrous and dark green on the upper, paler and slightly downy beneath, broadly oblong, gradually tapering at the base into a short stalk; margins remotely dividing into rounded lobes; stipules linear, setaceous, hairy, shorter than the petioles.

Q. pyrenaica (Tauzin).—Leaves dark green, glabrous above, paler and softly downy beneath, about 7 ins. (18 cent.) long, 4 ins. (10 cent.) wide, shortly stalked, broadly ovate oblong, somewhat cordate at the base, dividing halfway down from the margin into bold, oblong lobes, the lobes themselves sub-lobate; stipules linear, setaceous, hairy, longer than the petiole.

COLOURED AND VARIEGATED FORMS.

Q. pulverulentissima.—Shoots and foliage glabrous, young shoots slender, reddish; leaves very shortly stalked, dark green mottled with white, 5½ ins. (14 cent.) long, 2 ins. (5 cent.) wide, oblong, irregularly dividing into shallow, oblong lobes; stipules linear, setaceous, glabrous, longer than the petiole.

Q. robur var. marmorata.—Leaves oblong, obtuse, with silver variegation, dividing into a few remote rounded lobes.

Q. Concordia.—A variety of Q. pedunculata. Shoots and foliage glabrous, leaves subsessile, 7 ins. (18 cent.) long, 5½ ins. (14 cent.) wide, golden yellow, broadly obovate-oblong, rounded, correlate at the base, with short, rounded lobes overlapping the very short petiole; stipules caducous, broadly oblong-acute, slightly longer than the petiole. This is one of the handsomest golden-leaved trees, and most effective against a dark background.

Q. purpurea.—A form of Q. pedunculata. Herbaceous portions deep purple; leaves obovate, with a few rounded lobes. This is probably the var. purpurascens of De Candolle. The colour in some forms is more persistent than in others; it might be associated with the Golden Oak, or with the silver-variegated form. *M. T. M.*

HARDY FLOWERS AT KAIMES LODGE, MIDLOTHIAN.

SINCE his retirement from the curatorship of the Royal Botanic Gardens, Edinburgh, Mr. Robert Lindsay has devoted his leisure to the cultivation of flowers, those of a hardy character receiving his special attention. A recent visit to his bright and pretty garden at Kaimes Lodge, Murrayfield, Midlothian, afforded me much enjoyment, and enabled me to meet with several plants not commonly in cultivation, though worthy of inclusion in collections of the best hardy flowers. The garden lies well exposed to the sun, and this rather cold season has suited it admirably, the shrubs and alpines all looking remarkably well, the rockeries in particular being finer than I have ever seen them there before.

As is well known to readers of the *Gardeners' Chronicle*, Mr. Lindsay has devoted much of his time and attention to the study of the New Zealand Veronicas, and these, with the many hybrids he has raised, are grown in large numbers. At the time of my visit the greater number were in bloom, and formed a most interesting study. Among the numerous species and hybrids were such as Hectori, cupressoides, loganioides, tobercorranensis, amplexicaulis, the pretty pink Lindsayi, of Mr. Lindsay's raising; Rakaiensis, Cataractæ, Lyalli, Traversii, anomala, Kirkii, Balfouriana, Bidwilli, and many more. One was particularly struck with the beauty of V. Wardiensis as an edging, while the peculiar little V. canescens came in for a special note in one's memoranda. Remarkably interesting, however, are the seedlings, some of which are likely to receive names. In one bed of seedlings there were some capital seedlings of flowering size, from which it seemed difficult to select the best, almost every one possessing points of beauty of their own. Mr. Lindsay is aiming at securing good pinks and deep blues, and there is every prospect of success in these directions, together with floriferous character and neatness of habit. Two seedlings have been named Pioneer and Forerunner.

Hardy Primulas are also much cultivated; and though the greater number were out of bloom, I had an opportunity of seeing the last blooms on Mr. Lindsay's new hybrid, "Marven," from marginata and venusta, the foliage showing distinct traces of P. marginata, while the flowers were of the deep colour of P. venusta. It promises to be a valuable garden plant.

On the rockeries, which are on the "terraced pocket" plan, were many plants in flower, such as a good plant of Saxifraga aizoides aurantiaca, found, by the way, at Dalnaspidal; the difficult Phyteuma comosum, a fine plant of Potentilla lanuginosa, a grand plant of Asperula nitida, Linum flavum, much finer than I can grow it; Astragalus alpinus albus, the tender Erpetion reniforme, Cistus purpureus, hardy at Kaimes Lodge; Epilobium obcordatum, the pleasing Aphyllanthes monspeliensis, and many more; while Helianthemums, Philadelphus microphyllus, and other things, helped to make an unusually bright display for the rock garden in July.

In his garden Mr. Lindsay has also a number of shrubs and small trees, many of which are of considerable interest, either in themselves, or in studying what plants will stand the cold climate of the Edinburgh district. There are several Eucalypti, among them being a seedling from the noted tree at Whittinghame, about whose precise name there has been so much difference of opinion. There is also a nice plant of E. Gunnii, from seed sown in April, 1899, and now about 12 feet high, though much exposed to strong winds,

which have necessitated its being "guyed" after a gale which almost uprooted it. Then the hardy Palm, Trachycarpus excelsus, stands the winter quite well, though unfortunately the exposed character of Mr. Lindsay's garden causes it to suffer much from the wind. Cordyline indivisa was also thriving in the open. On the walls are choice Ivies, and such shrubs as the varieties of Ceanothus; while the shrubbery contains many interesting shrubs and trees, many of a hybrid character. Roses are not forgotten in beds, and beds of hardy Ericas and Callunas, and Japanese and other Maples, are of interest to those who admire these beautiful shrubs and trees. In the conservatory were a number of interesting plants, but I have already exceeded my intended space, and must forbear, merely adding that few private gardens contain so many interesting plants as that at Kaimes Lodge; plants, too, not only of botanical, but of gardening value. *S. Arnott.*

THE BEGINNING OF THE LILY SEASON.

To my gratification, the Lily season opened this year with a variety of great beauty which I never saw before, viz., Lilium Hansoni, which, though introduced into my garden during the winter of 1900, took considerably longer to establish than I had anticipated, but was probably all the finer on this account when the flowers made their first appearance. Lilium Hansoni is a member of the great Martagon group, to which also Lilium monadelphum and L. pardalinum belong. It is a formidable rival in effectiveness of colouring and stateliness of aspect to either of these, though it does not reach the majestic height so frequently attained by the great Lily of Mount Caucasus, Lilium Szovitzianum.

As I have already indicated, Lilium Hansoni is one of the earliest of Lilies, appearing in my own garden this summer before the Lily of Siberia, Lilium Davuricum. Its colour is a very rich golden-yellow, spotted with black. If planted in a suitably picturesque situation, it is splendidly effective, especially when seen, as it is here, in contrast with crimson Roses and other flowers of decided and brilliant hues.

Immediately following Lilium Hansoni came a Lily of a widely different character, and assuredly of much more attractive fragrance, viz., the supremely beautiful Lilium Washingtonianum, which is not, as its name seems to imply, a native of Washington territory, but near to California. It is the peculiar gem of the Sierra Nevadas, and is greatly admired by the people of that picturesque region of North America. Its colour at first is white, with spots of an almost imperceptible character; it however turns pink on the threshold of decay. It is one of the very few existing Lilies of great fascination whose odour is refined. In this respect, it may be placed in the

Fig. 39.—THE CHURCH-WALK, SANDRINGHAM. (see p. 118.)

same category as Lilium speciosum, which it also more than rivals in delicate grace. The fair Washington Lily does not succeed in every position to which by the careless cultivator it may be assigned. I tried it myself in several situations before it entirely succeeded in one. But I am very glad to have a single specimen of this charming Lily, with an average of eight or ten flowers of the most tender and fragrant loveliness every year. I prize it all the more that I have never had the pleasure of seeing it elsewhere, from which I infer that it is, both in Scotland and in England, exceedingly rare, almost as much so as Magnolia Watsoni, which also flowers effectively here.

The beautiful successors of the Lily of Washington (let us rather say of California) in my garden have been Lilium Davuricum incomparabile, one of the finest representatives of the Isolirion sub-genus, to which the familiar "Orange-Lily" also belongs; Lilium Burbanki × and L. monadelphum var. Szovitzianum, to which incidental reference has already been made. The noble Lily last mentioned is magnificent this season, reaching in one remarkable instance to a height of 8 feet. With its masses of citron flowers, faintly spotted with purple, the floral pictures it creates when viewed from a distance, towering above bright borders of Roses, is memorably impressive.

The Lily of Burbank might expressively be entitled Lilium pardalinum var. Burbanki. Mr. S. Arnott, of Carsethorn, an eminent naturalist, informs me that there are two varieties of this hybrid, which is described as a cross between Lilium pardalinum and Lilium Washingtonianum; but for my own part, I can discern little difference between the famous Panther Lily and that which bears Mr. Burbank's name. As for the fragrance which its raiser describes as having been derived from the only one of its supposed parents which possesses such a precious attribute, I utterly fail to discover it at all. The Lily of Burbank is nevertheless interesting as being a derivative from Lilium pardalinum.

Lilium auratum, in all its forms, is full of promise with massive growth; the variety entitled platyphyllum being a veritable giant this year. Very vigorous also are such Lilies as longiflorum, excelsum, Henryi, and speciosum. *David R. Williamson.*

The Week's Work.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

The Rose Garden.—The Roses that are grown on pillars, arches, arbours, &c., should have a considerable proportion of the old wood that has flowered this year, cut away forthwith, especially the more rampant-growing species and varieties. The journeyman-gardener, who should carry out this kind of work, should possess a knowledge of the habits of the different varieties, &c., and treat each accordingly. As badly ripened wood never brings good flowers, the operator should retain only the best shoots, and so secure them that they obtain full sunlight. Manure-water, or other suitable fertiliser, should be afforded more or less often, according to the needs of the plants. If some of the Roses are not vigorous, and growth is poor, hard pruning must be carried out, which will have the effect of producing strong young growths. Noisettes and Teas growing on fences and low trellises should be carefully thinned of the old wood, and the young shoots spread out regularly and made secure. Afford liquid-manure copiously. Plantations of dwarf and standard H.T.'s, as soon as the first crop of bloom is over, should have the seed-vessels and spent flowers removed, and any greatly extended shoots cut back to about the length of the others, and be manured; the top buds will then soon break, and produce an abundance of flowers in the autumn. All H.P.'s and varieties of Moss Roses may be similarly treated. Keep the beds and borders clean and free from weeds by hoeing. The layering of Roses is a simple and easy method of increasing the number of any variety of Rose, choosing long, well-ripened shoots, conveniently placed near the soil. Cut a slight notch in the layered part, or give the shoot a twist; scoop out a hole 4 inches deep, lay the shoot in position, fasten it firmly with a wooden hook, and fill in the soil and make it firm. The shoots may be layered in pots, if that be thought desirable.

Hedges.—Yew, Box, and Holly, having completed their growth, may be clipped forthwith. At Culford the hedges of Yew are very extensive, and form a feature of the landscape; and being clipped at this season, their appearance is preserved intact until growth recommences in the spring.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Cypripediums.—At this season of the year the Cypripedium generally should be overhauled, for many plants may need repotting, especially such species as flower in the late spring and early summer months. The proper season for the repotting of Cypripediums is indicated by the beginning of growth, and in a collection some one or other plants will be ready for repotting in almost every week in the year. Various raisers of hybrids and crosses by uniting the winter-flowering species and varieties with those which flower at other seasons have, in the course of several generations, so mixed the seasons of flowering, that it does not require a very extensive collection to have some plants in flower throughout the year. It is therefore impossible to enumerate any season when the potting should not be carried out; still, if the rule is followed to re-pot when the plant has made a considerable advance in new growth—it will meet all cases. The compost should consist of one-half turfy-peat, and one-quarter each of chopped sphagnum and Oak-leaf soil. The crosses of C. insigne, C. Charlesworthi, C. bellatulum, and others of that section, are benefited by the compost containing a small quantity of turfy-loam. The fern-rhizomes found in most Orchid peat may be used for drainage instead of other materials. It is not advisable to disturb the plants often, and when a plant is in good health, the pot should be large enough to accommodate it for two years. Plants which have many growths standing very close together should have some of these removed, so as to give space to the inner ones. The stock of any plant can soon be increased if this method be adopted. In most cases when a portion has been removed, the back-growths will break, which would not otherwise be the case. After potting, apply water in sufficient quantity to moisten the compost, and well shade all divided plants till a good start is made; and let the house be kept in a humid state, spraying the plants frequently on bright days. If thrips are numerous, mix enough quassia-water with the water used for spraying as will give it a bitter taste, and make use of this once or twice a week. Where Orchid-houses are well fumigated with XL-All, thrips give no trouble.

Cattleya-house.—Some of the plants may require surfacing or repotting, and amongst such are C. Lawrenceana, C. Skinneri, Lælia tenebrosa, L. purpurata, C. gigas, and C. aurea. These various species are pushing forth roots, and potting may be safely carried out until actual roots become visible around the base of the new growth. The compost should consist of three-fifths turfy-peat, one-fifth chopped sphagnum, one-fifth leaf-soil, the whole being well mixed together. The state of the plant will determine the amount of drainage employed, but generally C. Lawrenceana, C. Skinneri, C. gigas, and C. aurea, may be afforded liberal drainage. The top of the compost and the base of the plant should be, when finished, on a level with the rim of the pot; and the potting materials must not be made hard, or the roots will not penetrate them, and keep inside the pot to so great an extent as when the materials are placed together with a light hand. During dull weather strict attention should be given to these and other Orchids that are not injured by sunshine, affording them full sunshine without scorching the leaves; and it may likewise be advisable if dull weather continue to increase the quantity of fire-heat, and at the same time afford more air.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Pinks.—Pinks, especially the old common white form, make excellent pot-plants for flowering early in the year, and in order to obtain good results, the strongest and best rooted pipings should be potted up singly in 5-inch pots, or in threes in 6-inch pots, the soil used being loam, leaf-mould, and pulverised horse-droppings, the whole being mixed largely with coarse sand or road-grit. In potting make the soil firm with a rammer, place the plants in a cold frame, and afford them the same treatment as that afforded winter-flowering Carnations, viz., free ventilation and exposure to almost all kinds of weather, except heavy rain. Pinks are not so much grown as pot-plants as they deserve to be, for their fragrant flowers are liked by everyone.

Souvenir de la Malmaison Carnations.—As the layers of these varieties become rooted, sever them from the parent-plants, and in the course of a day or two, pot them in 4-inch pots, making the soil firm. This should consist of loam, leaf-mould, sand, and a small quantity of bone-meal and old soot. If the loam is of a heavy nature, incorporate pulverised horse-dung with it. Shade from bright sunshine for a while after potting, and afford water very carefully.

Schizanthus.—For an early summer display these "Butterfly" flowers are excellent subjects, S. retusus especially, the flowers being of such a pleasing colour; but the new S. Wisetoniensis varieties are also very nice, as well as free flowerers. Seeds should be sown at this date in 6-inch pots, and the plants flowered in these. Not more than three plants should be left in a pot at the final thinning. For the present a cold frame will suit their needs, but later a light shelf in the greenhouse will be the best place.

Bouvardias.—Let the points of the shoots be stopped for the last time on early flowering plants, and those which are planted out be cut round with a spade in about ten days later. The latter may be lifted and potted a week later, and placed in a hot-water pit, which may be slightly warmed on cold nights. The syringe should be freely used on the plants, and early enough in the afternoon to enable the foliage to get dry before nightfall.

Acalypha hispida.—Inconveniently tall plants, or those whose tassels are shabby, should be topped, the tops of the leading shoots made into cuttings 4 inches in length, put singly into small pots, and struck in the propagating-pit in strong heat.

Aristolochias.—Cuttings of side shoots of A. elegans and A. Sturtevanti may now be struck. The latter does not always strike freely, and as old plants have a knack of dying off suddenly if the roots get chilled, it is prudent to have always a few young plants on hand.

Edging Plants.—Where permanent edgings of plants of a trailing habit are the fashion in hothouses, batches of cuttings of Tradescantia, Oplismenus Burmanni variegata, Pilea muscosa, and the like, should be struck at frequent intervals, and as the propagating-pit is not required for other purposes just now, it is a convenient time for raising the quantity required.

THE HARDY FRUIT GARDEN.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, East Budleigh, Devonshire.

The Grape Vine.—The weather experienced this summer, excepting for about a fortnight, has been all against this fruit, and unless a change for the better takes place soon, it is to be feared the bunches will fail to ripen satisfactorily. If not already done, let the final thinning of the berries be carried out forthwith, and keep the bunches away from the wall with a crutch or forked stick. Do not crowd the growths, but stop all lateral shoots at the first leaf, unless there is space to train them in, but do not shade the fruit or the wood which will be required to form fruit-buds for next year's fruiting. It has not been necessary to syringe the foliage much of late, owing to the heavy rains. Keep a close outlook on the bunches, in case mildew should appear, in which event dust with flowers-of-sulphur, which is, I think, still the best remedy, washing it off with a syringe twenty-four hours later, by which time the fungus will have been destroyed. Now is the season to apply diluted farmyard manure-water, or to sprinkle Thomson's Vine-manure on the soil; washing it in with clean water, but discontinuing the practice as soon as the berries begin to change colour.

Pears.—The varieties that ripen this month consist of but three or four, so that every care should be taken that these are protected from the birds and wasps. Doyenné d'Eté, Beurré Giffard, and Jargonelle should be gathered before they are fully ripe, or the flavour will be impaired. They will keep good for a few days. Early summer-pruned trees against walls will have made secondary growths, and these should be pinched or cut back to within a couple of inches of their point of origin. Mid-season and late varieties which may have full crops of fruit should be assisted with manure-water, and if not mulched, the soil should be kept friable by being hoed at short intervals of time.

Apples.—The early kitchen Apples, Lords Suffield and Grosvenor, Duchess of Oldenburg, Ecklinville, and the Codlins, if carrying heavy crops, may be reduced in number, and the thinnings used for tarts, while those left on the trees will improve in size in consequence. Orchard trees would be benefited if manure can be applied to the roots during the next few weeks, and after the frequent rains of late nearly all over the country, this will prove of immense benefit to the swelling crops or to trees that are not making much growth.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith, Scotland.

Strawberry-plants for forcing.—The potting of the rooted runners into the fruiting-pots, 5-inch for the earliest, 6-inch for the later fruiters, should now be finished. The heaviest soil affords the finest fruits; if a light soil must be used, add to each wheelbarrowful a 7-inch pot of bone-meal and the same of Thomson's manure. The soil should be firmly rammed, the plants stood in the shade for a day or two, and afterwards in full sunshine, preferably on a coal-ash bottom. When it is seen that the plants are making roots freely, water may be liberally applied, but for a week or two after repotting afford water carefully, so as not to sodden and consequently sour the soil. Overhead sprinkling in the evening is very beneficial at this stage. Manure should be applied when the balls have become matted with roots. For the earliest forced fruits, Vicomtesse H. du Thury and Stevens' Wonder are the most to be recommended; and the next in point of earliness, if the soil is quite suitable, is Royal Sovereign, but if it is not, then Scarlet Queen is the better variety. President and Leader are good for late crops, and Monarch is not worth growing in pots. Let a plantation of well-rooted runners be made on a south border, to provide early runners next summer to be grown on for forcing.

Tomatos.—Plants for fruiting in the winter should be kept stocky, which is best done by keeping them near the glass, in pots not exceeding 6 inches in diameter, before showing their first flowers. The pots for the final shift should not exceed 10 inches in diameter, and they should be filled only to the extent of two-thirds, including the drainage. Add bone-meal to the soil. If the plants are well grown before the winter sets in, and at that time placed in a house with a minimum temperature of 60°, and the roots afforded an occasional manurial dressing, they will afford a moderate quantity of Tomatos during the winter season.

Fig-house.—The second crop of fruit is now ripening off, and all syringing must be stopped, more air than hitherto admitted, the house generally kept drier in dull weather, and on cold nights a small amount of heat in the heating apparatus. The mean temperature should be about 65°. When all of the fruit is gathered from the trees, remove any shoots not required for fruiting next year, and apply heat sufficient to ripen the wood. Syringe the trees occasionally, employing an insecticide if red-spider be observed. Apply water to the borders when dry.

Peaches, Nectarines, and Plums in unheated houses in this sunless season are not doing satisfactorily, and the best use should be made of what little sunshine there is by closing the house at 4 P.M., syringing the trees well then, and opening the upper ventilators in the evening. The trees should be, as a rule, syringed in the mornings, and if necessary an insecticide should be used so as to keep the foliage clean and healthy. Thin out the shoots where numerous, and remove gross shoots, which last in such houses cannot be ripened. Tie in the remainder, and with the aid of twigs keep the leaves off the fruits as much as possible. Trees with ripening fruit upon them should be kept dry, and be well ventilated. As soon as the fruit is gathered from a tree, afford the latter a copious syringing. Whilst the fruit is growing in size, keep the soil moist, and apply manure-water occasionally.

THE KITCHEN GARDEN.

By T. Turton, Gr. to J. K. D. Wingfield Digby, Esq., Sherborne Castle, Dorsetshire.

Hints on Work in General.—Owing to the dripping and sunless weather, and the consequent lateness of all early crops, alterations in the usual rotation for second cropping will have been necessary, it being unadvisable to put too much dependence on the autumn being fine. As fast as land becomes vacant, Coleworts, early varieties of Savoys, and all varieties of Kale, and even of Broccoli, where the plants are strong, may still be planted. In planting winter stuff, and Savoys and Broccolis in particular, which have stood long in the seed-beds, great care should be observed that the hearts of the plants are not malformed, the local terms for which are pin-hearted, buckle-hearted, blind-hearted, &c., as such plants if set out have eventually to be replaced, and the result is a plantation of uneven plants.

Peas.—The season so far has been favourable for Peas, and there are no signs of mildew on the plants. Gardeners who have provided for autumn supply by sowing the varieties which I recommended, viz., Veitch's Autocrat, Sutton's Late Queen, Latest-of-All, and Walker's Perpetual Bearer, should be well provided; these being Peas with short haulm, are convenient for protecting from the birds, although entailing a little more labour at the time than the usual practice of throwing fish-netting over the rows. I protect in the same manner as are bush fruit quarters, viz., drive in stout poles round the outside of the quarter, the intermediate poles being smaller, from which to strain wires for carrying the netting high enough above the rows to admit of a man getting underneath it to gather the Peas. Where single rows have to be protected, a wire strained from strong poles placed at the ends of the row, and twisted around smaller intermediate poles, supports the netting, and does not hinder the Pea-gatherer. In order to avert an attack of mildew, continue to afford the rows of Peas enough moisture, without excess at any one time to chill the soil; and the water that is afforded should have been for some days exposed to the sun, if it be not pond or river water. Remove Pea-haulm where the crop is exhausted, let the ground be vacant for a few days so that weed-seeds may germinate, and then afford it a hoeing to kill the plants, whereas if the seeds are dug in they will give trouble at some future time.

Potatos.—If the land under this crop is required for Turnips, &c., Windsor Castle and other second early Potatos may now be lifted, as unless the tubers are growing out the skin will be well set. Do not expose the cooking tubers to the light for more than a few hours, but remove them to the potato-store. Place the seed-tubers in a cool airy shed from which the light is partly excluded, laying them out thinly. Keep a sharp look-out among the later kinds, and directly signs of growing out are observed (indicated by the haulm keeping green and continuing to grow), pull up the haulm by placing both feet close together on the top of the root, to prevent the tubers being brought to the surface.

French Beans.—Make a plentiful sowing forthwith on a warm border, and where it will be convenient to apply Jerusalem Artichoke-stems or evergreen branches as a protection against early frosts. In a trial of French Beans in these gardens this season, Veitch's Early Favourite was proved to be a week earlier than any of the other varieties, and very prolific. The plant has a good constitution, and I have decided upon sowing this variety at the present date. If the ground is not in good heart, take out trenches 1 yard apart, into which put a layer of spent Mushroom-bed dung, and return the soil previous to planting the seeds with a dibber.

THE APIARY.

By Expert.

Finishing off Sections.—All sections that are not filled should be closed, and in the greater part of the south of England, the honey flow being over it will not be wise to put on any more of them. The back part of the section-crate should be blocked up so as to drive the bees into the partly finished section, otherwise the bees will build comb and store what honey they can in the back, and leave the unfinished ones alone. Sections that have been attached to the dividers should be left in, for the bees to seal over. All shallow frames should be gradually closed in the same manner as they are taken out for extraction, and a little extra covering should be put on the crates, &c., to induce the bees to work in them, otherwise the very cold winds we are getting now may drive them to the body-box for warmth. Wax-moth should be kept well under, for once these pests commence to accumulate in any numbers it will be found a difficult task to destroy them. In storing hives ready for swarms, constant attention should be given them, as nowhere will wax-moth build quicker than in a hive they have all to themselves. A good plan is to hang up a bottle three parts filled with old beer to entice the moths into it.

Swarms.—These should be fed a little, while cool weather lasts, as by doing this now the beekeeper will find the advantages greater than if feeding be adopted at a later date; moreover, it will minimise robbing, the prevention of which is no light matter. Be on the look-out to obtain driven bees to strengthen weak colonies, or build up fresh ones as desired. Keep honey in a place safe from the bees, ants, and wasps, as they generally leave a mark on the sections which they travel across. Keep all run honey after being well strained and cleaned, tied over closely so that dust cannot enter. Examine the roofs of hives, immediately repairing those which let in the wet. Pay attention to the honey market, noting the price of run honey and that in sections, and do not be in too much haste to push your goods.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the **PUBLISHER**.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY,	AUG. 19	Royal Horticultural Society's Committees Meet.
WEDNESDAY,	AUG. 20	Shropshire Horticultural Society's Show at Shrewsbury (2 days). Royal Oxfordshire Horticultural Society's Show.
THURSDAY,	AUG. 21	Jersey Agricultural and Horticultural Societies' combined Show (2 days). Royal Horticultural Society of Aberdeen Show, Central Park, Aberdeen (3 days).
FRIDAY,	AUG. 22	Strathearn Horticultural Society's Show (2 days).
SATURDAY,	AUG. 23	Holmes Chapel and District Horticultural Society's Exhibition.

SALES FOR THE WEEK.

MONDAY, AUGUST 18—
Great Trade Sale of Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 11; also L. Harrisii, Roman Hyacinths, &c., at 6 P.M

THURSDAY, AUGUST 21—
Great Trade Sale of Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 11.

FRIDAY, AUGUST 22—
Orchids in large variety, by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —61·6°.

ACTUAL TEMPERATURES:—
LONDON.—*August* 13 (6 P.M.): Max. 68°; Min. 51°.
August 14.—Dull, warm.
PROVINCES.—*August* 13 (6 P.M.): Max. 62°, Southern Counties; Min. 48°, Shetland.

Osborne.

WE are enabled this week to supplement the remarks on Sandringham, published in our Coronation number by some additional illustrations, prepared like the others, by the express permission of HIS MAJESTY. These tell their own tale. But the sensation of the week, apart from the Coronation itself, has been the announcement by the KING of his intention to present to the Nation the beautiful domain of Osborne, so long the residence of QUEEN VICTORIA and the PRINCE CONSORT, which will for all time be venerated by the British nation as the place where the revered Sovereign breathed her last. We avail ourselves of this truly regal munificence to reproduce some of the illustrations which we have from time to time given of Osborne. Though situated on the north side of the Isle of Wight, and having therefore a less mild climate than is enjoyed by the residents on the opposite side of the island, yet its situation is such as to permit the growth in the open air of plants which, on the mainland, mostly demand the shelter of a conservatory. Fortune's Palm, Trachycarpus Fortunei, thrives in the open; indeed at Ryde, close by, we have seen seedlings coming up spontaneously, and in abundance, as possibly they also do at Osborne.

Myrtles and Camellias flower freely in the open air, and are attractive when not in flower by reason of their foliage. Oranges ripen on the walls with a little protection in winter, and shrubs thrive and flower as if they were in Devonshire. Memorial trees abound, planted by the late Sovereign, her relatives, and by other eminent persons, and will add to the interest of the newly-acquired national property. Probably a rectification of the names of some of the trees will be needed, unless indeed this has been attended to of late years. Among the most interesting features at Osborne are the little plots of ground tilled by His present Majesty and his brothers and sisters in their childhood, under the supervision of the PRINCE CONSORT. Hard by is a pavilion, "the Swiss châlet," in which the tools and wheelbarrows used by the Royal gardeners, duly cleaned and labelled, are preserved in the fashion befitting a well-ordered tool-shed. Forcing-houses and vegetable culture do not constitute a feature of Osborne, the necessary supplies being furnished from Frogmore.

For its touching associations, no less than for its beauty, Osborne will for ever hold a place in the esteem of the nation, and the thoughtful consideration which has placed this princely residence at the disposal of invalided officers of the Navy and of the Army will, if such be possible, enhance the loyalty of the British public.

Osborne has often been described in our columns, particularly on June 19, 1897, to which number we refer the reader desirous of a fuller account of the park and garden.

THE LAKE AT SANDRINGHAM.—Our Supplementary Illustration to the present issue affords a view of the upper lake in the grounds at Sandringham, the country home of their Majesties the KING and QUEEN. The ornamental waters at Sandringham are situated on the south side of the mansion, and extend to the front of York Cottage, where the water widens out considerably, and there is an island which is very beautifully planted. The view in our illustration was taken from a point near to the park gates, and the camera was directed towards some Rhododendron-beds, which may be seen through a vista on the left-hand side of the picture. On the right-hand side may be seen the top of the south end of the mansion above the trees, showing that the lake approaches very near to the building. The other end of the lake, and York Cottage, were illustrated in our Coronation number, published on June 21, which contained a number of photographs, taken by special permission for the *Gardeners' Chronicle*, and representing these beautiful gardens, in the formation and maintenance of which their Majesties have shown such personal interest.

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committees of the Royal Horticultural Society will be held on Tuesday, August 19, in the Drill Hall, Buckingham Gate, Westminster, at 1 to 5 P.M. A lecture on "Horticultural Education and Teaching in England" will be given by Mr. W. H. PATIERSON, F.R.H.S., at 3 o'clock.

—— At a general meeting of the Royal Horticultural Society, held on Tuesday, August 5, eleven new Fellows were elected, making a total of 870 elected since the beginning of the present year.

—— The Royal Horticultural Society will hold a special exhibition of Dahlias on Sept. 2 and 3, in conjunction with the National Dahlia Society, in the Drill Hall, Buckingham Gate, S.W. At this meeting only Dahlias can be shown, with the exception of flowers, fruits, &c., for Certificate. All Dahlias, including those shown for Certificate, must be left on exhibition until 5 P.M. on the second day, but other plants may be removed as usual. For schedule of prizes see *Royal Horticultural Society's Book of Arrangements for* 1902, pp. 91 to 93; or separate schedules can be obtained on application to either Mr. J. F. HUDSON, M.A., Gunnersbury House Gardens, Acton; or to Mr. C. E. WILKINS, 19, Lyndhurst Road, S.E., joint Secretaries to the National Dahlia Society.

—— Intending exhibitors at the Crystal Palace Fruit Show on September 18, 19, and 20, can obtain an official entry form, together with schedule, on application to the Secretary, Royal Horticultural Society, 117, Victoria Street, S.W. (a penny stamp should be enclosed). Entries for this show close on September 11.

OUR CORONATION NUMBER.—We have specially to thank our foreign colleagues for their hearty commendation of our Coronation number, and for the various congratulatory telegrams which reached us from Brussels and other sources. The *Revue Horticole*, the *Moniteur d'Horticulture*, the *Gartenflora*, the *Haven* of Copenhagen, and various American journals, have expressed their admiration. A few copies remain in stock, for which early application to the Publisher should be made.

FLOWERS IN SEASON.—From Messrs. VEITCH, Chelsea, we have received a fine spike of Buddleia variabilis, figured in our columns August 20, 1898. It is a Chinese species, discovered by Dr. HENRY, closely allied to the Himalayan B. Lindleyana, and, like it, having lilac flowers; but in this case with a yellow eye. The broad, rounded stipules are connate, and also adnate to the stem. Messrs. VEITCH'S specimens are of more vigorous growth than any we have seen before, and the stems and foliage are quite glabrous. The name under which it is sent is B. albiflora, but we cannot distinguish the plant from B. variabilis.

COLLEGE OF AGRICULTURE, DOWNTON, SALISBURY. — The twenty-second Summer Session of this College ended on Friday with the usual distribution of Certificates and Prizes. Professor WRIGHTSON presided, and in his address spoke of the connection between Nature-study and Agriculture, especially as regarded trees (forestry), grasses, animals, both useful and predatory, insect attacks, and weeds. He also commented on the attention of their American and Australian students. The following is a list of the Prizemen:—The Bles Scholarship of £10, given to the best man who has completed one year, F. G. BATEMAN, of Somerset Road, Ealing, W. The diploma, given to two years' residents who pass in all subjects taught at the College: J.C. THOMPSON, of Knighton House, Leicester; A. J. H. WRIGHTSON, of the College of Agriculture, Downton; F. R. KELLY, of Ballantlea Park, co. Clare, Ireland; N. D. STEWART, of Bryntirion, Vaynol Park, Port Dinorwic, North Wales; and C. CROWLEY, of Banghurst Rectory, Basingstoke.

"IL CRISANTEMO." — This quarterly periodical publication of the Italian National Chrysanthemum Society appears with unfailing regularity. It maintains its high standard so far as style and get-up are concerned, and makes one almost envious that something of the same kind has never been attempted here in England by enthusiasts who worship at the shrine of the golden flower. Among the contents we notice an obituary notice of the late CARLO ROVELLI, several notes about the shows at Brescia and

A View of the Lake, Sandringham: photograph by mr. f. ralph, by express permission.

Genoa, one or two cultural articles and details concerning the fifth annual exhibition of the society to be held on November 8 and four following days in Milan. The list of prizes is a liberal one, and nearly all the classes are open. The Marquis Visconti Venosta offers a gold medal for new seedlings obtained by the exhibitor, and this is for Italians only. Altogether in the various sections there are forty classes for Chrysanthemums, the remainder being for other autumn-flowering subjects.

United Horticultural Benefit and Provident Society. — The monthly committee meeting of this Society was held at the Caledonian Hotel, Adelphi Terrace, Strand, on Monday evening last; Mr. Thos. Winter presided. After the minutes of the last meeting had been read and signed, four new members were elected, and one nominated. Five members were reported on the Sick Fund, and two others had been on and off the fund since the last meeting. The Secretary was instructed to make the preliminary arrangements for the Annual Dinner, to be held early in October next.

Campanula hybrida (?). — The supposed hybrid between C. latifolia and C. pyramidalis, shown at the last meeting of the Royal Horticultural Society, is now pronounced to be no hybrid, but C. peregrina, figured in the *Botanical Magazine* in 1810, t. 1257. The figure is very characteristic, and the purple spot at the base of the corolla, which was the subject of comment at the meeting, is well shown in the figure. It is a native of Asia Minor, not of South Africa, as stated in the *Magazine*.

M. de la Devansaye's Plants.—The fine collections accumulated at the Château du Fresne, near Noyant-Mèon, Marne-et-Loire, four or five hours from Paris, by the late M. de la Devansaye, are to be sold by auction on Sunday, August 24, and following day. The Vandas and other Orchids are remarkable, and especially the Palms and Aroids, to which latter group, as our readers will remember, the late gentleman paid special attention. Further information may be obtained from M. Auguste Chantin, 83, Rue de l'Amiral Mouchez, Paris.

Notes from Durban.—A correspondent in this city writes home suggesting the use of what is termed a dust-sprayer for the purpose of checking the growth of parasitic fungi on fruit-trees called rust, and for assisting in the extermination of insect pests. On the same subject the writer says:—"It it often difficult to cart about the fluid mixtures to be discharged into infested trees, and to get the apparatus into the proper position for doing good work. Surely a mixture of powdered quick-lime and sulphate of copper could be readily discharged into a tree by means of a small bellows connected with a hopper and treadle, mounted on a spiked stand, all so arranged (with an extension pipe from the nozzle of the bellows for getting into the branches) that one man could easily travel about with in the early morning, when the trees are damp, and do the work with ease and certainty." To this we can only say that there would appear to be no reason why dust-spraying should not be successfully applied in Natal, as we believe it is in the southern and western States of America. The officials at Pietermaritzburg might be able to give the necessary aid. Of course, that which would be effective in South Africa might be made equally so elsewhere. By the way, the rainfall at the coast in Natal appears to have been satisfactory in amount during the past year, 40 inches being recorded for that section of the country—enough to enable the Suger-cane to flourish. Throughout the Colony the rainfall would appear to have been satisfactory during the year ending with June last.

Mr. George Nicholson.—Some time since it was decided by some of Mr. Nicholson's friends and colleagues to offer him, privately, on the occasion of his retirement from the Curatorship of the Royal Gardens, Kew, some tangible evidence of the high regard in which he is held. A committee, consisting of Mr. W. Marshall, treasurer; Mr. F. W. Burbidge and Dr. Maxwell Masters, was formed to carry out the proposal. Numbers of contributors, rather than large amounts, were solicited. The result has been very satisfactory, and Mr. Nicholson has selected various articles, the daily use of which will remind him of his old friends. The salver bears this inscription:—

PRESENTED TO
GEORGE NICHOLSON, V.M.H.,
Late Curator of the Royal Gardens, Kew,
By his Friends and Colleagues,
Who, while admiring his Qualifications as a Man of Science and a Gardener,
Have a warm appreciation of his worth as a Friend. 1902.

Herr Wendland.—We regret to hear of the serious illness of this distinguished botanist and cultivator, so well known in connection with the Palms and with the collections at Herrenhausen.

"Flora of Tropical Africa."—Another instalment of this important work, prepared at Kew, has been issued by Messrs. Lovell, Reeve & Co. It is, of course, indispensable to the student of the botany of the vast region which comes within its purview. In the present part we find detailed monographs of the Oleaceæ and Salvadoraceæ, by Mr. Baker; whilst the bulk of the part is taken up by the commencement of an account of the important family of Apocynaceæ, by Dr. Stapf.

The Commons and Footpaths Preservation Society, has issued its report for the years 1899 to 1901, a report which affords evidence of good work accomplished, and of much more that could be done were the Society more generously supported. On the question of the erection of a wire fence around Stonehenge, there is room for differences of opinion. Whilst free access at all reasonable times to well conducted sightseers and especially to students, might be insisted on, it is equally desirable to exclude mischievous trippers and others whose presence is not desirable. How to reconcile the two interests is a problem which ought not to be beyond the capacity of this useful Association.

Tropæolaceæ. — A monograph of the Tropæolum family (consisting of one genus only, Tropæolum with fifty species), has been elaborated by Dr. Fr. Buchenau, in *Das Pflanzenreich* (Leipsig, Engelmann; London, Williams and Norgate). The descriptions and analytical tables are in Latin.

Marantaceæ.—Dr. K. Schumann has published in Engler's *Das Pflanzenreich* a monograph of this family, which is one of importance to the horticulturist from the number of ornamental species included in it. The most important genera from this point of view are Phrynium, Calathea (of which 103 species are described), Maranta (twenty-three species), and Thalia. Tables are given by means of which the cultivated species of Calathea may be distinguished by their mode of growth and foliage. Unfortunately this portion is in German. Marantas and Calatheas are much confused in gardens, but, if flowers are accessible, it will be found that Calatheas have a three-celled ovary, while that of Maranta is one-celled.

Stock-taking: July. — That trade is "picking up" is amply evidenced by the Board of Trade Returns for the past month. The value of the imports for the month is given at £44,086,960, as against £43,082,822 in the same period of last year—an increase of £1,058,138. Among the items of food increase, we note Wheat (from India and South America), butter and meat ahead, and Potatos increased by £114,000; tea went up, and timber increased by £207,383. From the usual "Summary" table we select the following items:—

Imports.	1901.	1902.	Difference.
	£	£	£
Total value ...	43,028,822	44,086,960	+1,058,138
(A.) Articles of food and drink—duty free	8,643,807	9,114,698	+470,891
(B.) Articles of food & drink—dutiable	8,600,732	8,587,727	—13,005
Raw materials for textile manufactures	4,399,478	3,473,207	—926,271
Raw materials for sundry industries and manufactures	6,705,852	6,939,164	+233,312
(A.) Miscellaneous articles	1,314,206	1,833,007	+518,801
(B.) Parcel Post ...	101,764	157,446	+55,682

The figures in the list of fruits, roots, and vegetables are very suggestive, and are as follows:—

Imports.	1901.	1902.	Difference.
Fruits, raw:—	Cwt.	Cwt.	Cwt.
Apples	48,913	35,786	—13,127
Apricots and Peaches	8,325	8,461	+136
Bananas... bunches	236,200	259,586	+23,386
Cherries	77,590	83,274	+5,684
Currants	59,944	58,990	—954
Gooseberries	6,516	13.089	+6,573
Grapes	24,300	12,250	—12,050
Lemons	115,361	149,886	+34,525
Nuts—Almonds ...	3,858	3,695	—163
Others, used as food	56,126	71,360	+15,234
Oranges...	28,387	128,268	+99,881
Pears	44,814	5,867	—38,947
Plums	60,410	35,656	—24,754
Strawberries	7,023	15,549	+8,526
Unenumerated, raw...	159,968	83,172	—76,796
Fruits, dried—			
Currants, for home consumption ...	29,533	46,521	+25,086
Raisins ,, ...	11,937	10,762	—1,175
Vegetables, raw:—			
Onions ... ...bush.	485,996	615,319	+129,323
Potatos ... ... cwt.	784,384	1,169,294	+384,910
Tomatos... ... ,,	186,535	164,182	—22,353

It is possible that the import of Potatos from the Continent may decrease in the near future—when apparatus for driving off the moisture from the tubers is perfected, when the dried ware will more readily and cheaply find its way by railroad, &c., as feeding-stuff for stock and for use in the distillation of spirits. Comparisons for "differences" will be found interesting in various of the above-noted points, &c. With regard to the total imports for the past seven months, it is placed at £306,790,912, against £305,416,327 for the same period in 1901, an increase of £1,374,585. This

may not be considered a very brilliant result, but it is a gain. Coming to—

EXPORTS,

these are placed at £26,029,170 for the past month, against £24,385,771 for the same period in 1901, or an increase of £1,643,399. We may just note that this increase is to be found in metals, wrought and unwrought; coal went up in quantity, but decreased in value; whilst new ships were sent out to the value of £504,000, against £497,974 in July last—a gain of £6,032. For the seven months the record is £161,404,744, against £162,299,169 for the same term last year, or a decrease of £1,561,425. Happily we may soon change this the other way round.

FIG. 40.—ORANGE TREE IN FRUIT, GROWING AGAINST A WALL IN THE KITCHEN-GARDEN AT OSBORNE. (SEE P. 118.)

GARDEN CITY PIONEER COMPANY.—The prospectus of this company has been issued, and £20,000 is asked in ordinary shares of £1 each for the purpose of taking the initial steps in building a garden city. The Directors of the company are mostly well-known business men, tried in the methods which are to be employed, and capable of exercising good judgment in carrying out the company's objects. They are:—Messrs. Ralph Neville, K.C. (Chairman); Edward Cadbury (of Cadbury Bros., Bournville); T. H. W. Idris, J.P., Chairman of Idris & Co., of London, Southampton, and Canterbury; Franklin Thomasson, of Bolton; T. P. Ritzema, J.P., newspaper proprietor, Blackburn; Ebenezer Howard, author of the garden city idea; and Aneurin Williams, the well-known co-operator. This company has been framed for the purpose of taking initial steps, including the formation of a larger company, towards carrying into effect the scheme suggested by Mr. Ebenezer Howard in his book entitled *Garden Cities of To-morrow* (Swan, Sonnenschein & Co.), and to assist in relieving the congestion in crowded cities by the redistribution of the industrial population upon the land. We understand that more than enough capital to let the Garden City Pioneer Company go to allotment has already been promised, but faith in the ultimate success of the scheme will be the greater if the whole 20,000 shares are taken up. Those who are sceptical of its success may gain some confidence in it by recognising that its principal financial supporters are Messrs. Cadbury and Lever, the two men who alone in this country can claim to form their judgment on the basis of experience. The intention is not to make profit, and those who are promoting the company, as well as those who are subscribing to it, must be solely influenced by a desire to give this great experiment a chance.

GARDENERS IN DURHAM, STAFFORD, AND ESSEX.—Following the order of population, the occupational results of the census of last year are now available in respect of the administrative counties of Durham, Stafford, and Essex, the enumeration of gardeners (not domestic), nurserymen, seedsmen, and florists being as follows:—

DURHAM.—1301 males, 62 females.

Principal centres included in Durham county:—

Gateshead	85 males,	5 females
South Shields	53 ,,	2 ,,
Stockton-on-Tees	28 ,,	4 ,,
Sunderland	143 ,,	14 ,,
West Hartlepool	85 ,,	2 ,,

STAFFORD.—2017 males, 52 females.

Principal centres included in Stafford county:—

Burton-upon-Trent	89 males	
Handsworth	132 ,,	4 females
Hanley	24 ,,	0 ,,
Smethwick	63 ,,	4 ,,
Walsall	86 ,,	4 ,,
West Bromwich	42 ,,	5 ,,
Wolverhampton	100 ,,	1 ,,

ESSEX.—4036 males, 109 females.

Principal centres included in Essex county:—

East Ham	134 males,	12 females
Leyton	217 ,,	20 ,,
Walthamstow	179 ,,	4 ,,
West Ham	178 ,,	19 ,,

REPORTS AND BULLETINS RECEIVED.—From the Botanical Department, Trinidad, *Annual Report for the Year ending March* 31, 1902. By J. H. Hart, Superintendent. In the herbarium steady progress has been made in the arrangement of the Trinidad flora. The chief addition to the flora is a new species of Laurineæ, provisionally referred to as Aydendron by the Kew authorities.—From the United States Department of Agriculture, Bureau of Plant Industry, *Bulletin No.* 12, *Stock Ranges of North-Western California*. Notes on the Grasses and Forage Plants, and Range Conditions, by Jos. Burtt Davy. The Report contains a comprehensive account of the whole region, its physiographic and climatic conditions, and all the features bearing upon the forage problem. It will be of use to ranchmen and dairymen, and to all interested in the stock industry.

HOME CORRESPONDENCE.

GARDENERS AND THEIR PROSPECTS. — In nearly all the arts and professions the highest positions attainable are open to the most humble aspirant, provided he has qualified himself for such a position by successful application and study. It is so to a large extent in the army and navy, and to judge by the lessons taught to the Nation by the late war, this principle in the future will receive fuller recognition. It is so also in politics, the church, medicine, surgery, music, &c., but when we come to matters horticultural, we are at once confronted with the fact that an impassable barrier seems to have been fixed, beyond which it is impossible for the practical gardener to pass, however eminent his qualifications may be. To illustrate my contention, I will first mention horticultural positions available under Government. Before proceeding to do this, I wish it to be perfectly understood that my remarks are directed entirely against what I consider a one-sided and unfair system, a system not calculated to give to the country in this matter the best returns it is entitled to for the money expended, and not, in any way, to find fault with or cast reflections on any individuals the holders of those positions. In any commercial or business transaction, some training and technical knowledge in the work over which a gentleman is appointed to preside is indispensable. Agriculture is stated still to be the most important industry in Great Britain (horticulture being included as one of its important elements). Yet when questions affecting deeply the interests of these industries are considered by committees and commissions appointed by the Board of Agriculture and the Colonial Office for this purpose, how seldom if ever do we hear of a gardener being invited to join these committees or called upon to give evidence! Yet what a vast accumulation of valuable practical knowledge bearing on these industries is here available for the important

and great heads of the public service. When information is needed, the evidence of theorists and amateurs of the better position in life is preferred. In view of the encouragement now held out for Englishmen to go to South Africa to settle on the vast tracts of fertile lands waiting to be cultivated there, no doubt commissions will be sent out to report on the suitability of certain tracts of land according to their position and the quality of soil for the growth of certain crops, whether of fruit, vegetables, or cereals. In view of this contingency arising, who can be more capable of helping the Colonial Office to come to a right conclusion in this matter so far as it relates to fruit and vegetable culture, than some of our long experienced, level-headed, practical gardeners! *Rustic.*

SOUVENIR DE LA MALMAISON CARNATIONS.—I have sent some blooms of Malmaison Carnation for your inspection which have been grown outside, not that I think they are large, but they have been grown without disbudding. I have a row of them in front of a vinery border, and they have had no attention given them since I put them there during the winter, and they are now showing abundance of bloom, such as those I enclose, and I would like very much to have your opinion of them. I also enclose a flower of a plant, I would be obliged if you would name for me; and I enclose 2*s.*, which you can give to any of the funds in connection with garden charities you may think fit. *D. Turner, Colne Park, Essex.* [The flowers are very good for specimens grown out-of-doors. The plant you wish named is Rondeletia speciosa. We have forwarded the 2*s.* to the Secretary of the Royal Gardeners' Orphan Fund. Ed.]

SPECIMEN ARAUCARIA.—In your issue of August 2, under "Home Correspondence," I observe you describe the specimen at Dropmore as exceptional. I have seen many of these interesting trees, but know of none to excel that growing at Messrs. Pennick's nursery at Delgany (Ireland)—in fact, there are three vieing with each other in health and beauty. One is 50 feet high, with a spread of 25 feet, furnished from crown to base, and of a beautifully pendulous habit. Several botanists have viewed it, and pronounce it to be the most remarkable tree they have seen. *Ireton Arthur Jones.*

THE FRUIT CROPS.—In looking over the reports of the fruit crops in the *Gardeners' Chronicle*, I was surprised to see the different reports from persons residing in this neighbourhood. There are several acres of Apples, Pears, Plums, and Cherries on this estate (Ruxley, Claygate, Surrey), but in no case can I say there is more than one-tenth of a crop. Small fruits also suffered very badly, and so far as I have observed anywhere around here, the reports of Messrs. A. Dean and Salter seem to describe them accurately. We have Apples, Plums, Pears, and Cherries in the gardens on walls and Espalier-trees that have crops upon them, but it does not seem to be fair to remark on these in any estimate of the year's crops. Peaches and Nectarines generally are plentiful, but will be much later—perhaps one month. The first blooms of the Strawberries were spoilt by frost and wind, causing most varieties to come in together, which made them plentiful for a short time, so that this crop might be put as an average one. *J. Hill, Ruxley Gardens.*

AN EFFECTIVE BIRD-SCARE.—At this place it has been our study to preserve all birds by encouraging nest-building in every way possible, and in this blackbirds and thrushes have not been slow in taking advantage of the privilege afforded them. All this was very well so long as the birds fed themselves and their young upon worms and such-like; but when the Strawberry season came on, and the weather became hot and dry, and fewer worms were about, they turned their attention to the Strawberry-beds; nor in this were they in the least shy, for until we endeavoured to let them know that Strawberries were to them forbidden fruit, they naturally appeared to have an idea that the garden and its fruit were all their own. The usual guys, &c., were set up, the scaring effect of which lasted only for the usual day or two, if indeed even for so long. Having in the house a couple of very talkative parrots, some of our people suggested trying the effect of placing these birds out upon the Strawberry-beds. One of them, a grey bird from the West Coast of Africa, talks fluently, and his words are well pronounced; some of his speeches run thus: "Three cheers for the King; hip, hip, hip, hurrah! that is my loyalty;" "Elizabeth's got the blues; nothing new in that;" these and similar speeches alternate with splendidly whistled tunes, such as "Rory o' More," "Pop goes the Weasel," "The Campbells are Coming," and similar other little ditties, with great force, finishing up always at the end of each speech or tune with a well-pronounced "What do you think of that?" putting great emphasis on the word "that." No. 2, a green bird from Cuba, has not such a full vocabulary as the African, but in its Spanish vernacular it made some queer noises; so that between the two, blackbirds and thrushes evidently thought it best to give the immediate surroundings of these birds a wide berth, and our Strawberries were by these means very much preserved! *W. Miller, Berkswell.*

THE NATIONAL DAHLIA SOCIETY.—More than usual interest will attach to the present year's show of the National Dahlia Society, because it is to be held at the Drill Hall under the auspices of the parent society, the Royal Horticultural, and will on September 2 form one of its ordinary fortnightly meetings. It is naturally hoped that a favourite old garden flower and its newer congeners, the beautiful Cactus and other forms, will on that occasion meet with a hearty reception on the part of flower lovers, and that the experiment of extending the show over two days will meet with well-merited success. But a few years since it was thought that the Dahlia, because of its stiff, heavy, rotund appearance as a flower, was played out. No doubt it was nearly so, and ere now might have been almost forgotten, but for the introduction of the Cactus forms, which curious as they were florally, and having many features which were offensive to the florists, yet caught on so freely with the flower-loving public, that they constitute by far the most important section of Dahlias now; because free-seeding plants, readily intercrossed, and easily raised, Cactus forms have come on in myriads, so that in spite of the remarkable advance that has been made in them, seedlings are annually raised by thousands, and selected ones put into commerce by scores—in that respect more

Fig. 41.—Trachycarpus (Chamærops) fortunei, in the Queen's Garden, Osborne. (see p. 118.)

than rivalling Japanese Chrysanthemums in productiveness. We have been in the past very liberal indeed in finding in seedlings merits which have entitled them to certificates or other awards. Last year the National Dahlia Society alone made twenty-seven such awards, yet scarcely a flower could be said to excel the best ones of the preceding year. It is greatly to be hoped that more discrimination will be exercised this year, and the consequent awards greatly reduced. Too largely the awards are made by members of the trade to each other's flowers. It is hoped that at the ensuing show a far higher standard of excellence and greater trade denial will prevail. *A. D.*

THE NEW ASTILBE.—I saw specimens of this beautiful new hardy herbaceous plant the other day growing in the open air at the Coombe Wood Nursery. Whilst none were of nobler appearance than was the fine specimen Messrs. Jas. Veitch & Sons showed at the Drill Hall on the 5th inst., yet seen in the bright light of an August day, the coloration of their inflorescence was so much more striking than it was in the dull Drill Hall. Seen at a distance of several yards, the hue is reddish-magenta, but looked at but 2 or 3 feet distant, then it is noticed that the red ground is profusely suffused with blue; indeed, the coloration reminded me very forcibly of the shot red-and-blue silks so popular fifty years ago. There are about a dozen large plants in the nursery. I noticed that wild bees were greatly attracted to the flowers, the spikes of which are from 15 to 18 inches long, and stems 4 feet in height, gave a noble appearance. This Astilbe chinensis Davidi is certainly the most remarkable hardy plant lately introduced. *A.* [See p. 103, fig. 34, last week's number. ED.]

CORONATION MEMORIAL TREES.—There can be no doubt but that many coronation memorial trees were planted on the 9th inst. generally, although the risks are great. Preference is given to planting these trees on the day of the national celebration, because of the associations, rather than more wisely planting them after leaf-fall in the autumn. Through the kindness of Messrs. Jas. Veitch & Sons, who sent down to Kingston two nice young Oaks that had been last winter got into baskets then replanted for the time, so that when lifted for planting on Coronation day, they were quite fitted for such purpose. The Mayor Dr. St. L. Finny, and the Mayoress, at a public function planted them on the Canbury Promenade Gardens in the evening, where under the care of the Council's gardener they will be well looked after. In that respect their fate may differ greatly from that of so many memorial trees, which planted with great ceremony, then fenced round, have been forgotton, and either have died or been eaten up by weeds and neglect. *Kingston.*

MARKET PRICES OF CABBAGES.—Your correspondent "E. H. J." is wrong in his suggestion that with a glut of Peas, Cabbage is in little demand. There is no doubt whatever that growers of Cabbage have this season done much better than Pea-growers, for rarely have they obtained the prices of this year, as at the present time moderately good heads easily make from 5*s.* to 6*s.* per tally; a month ago 8*s.* to 10*s.* was the average price, 15*s.* and more being made in some instances. From some cause there appears to have been a smaller supply of this vegetable than usual, hence the advanced prices; at this time of year, 2*s.* 6*d.* to 3*s.* per tally is about the usual price. *C. Herrin.*

VEGETABLE GARDENING.—It is pleasing to note that such a high authority on kitchen gardening as Mr. Beckett, draws attention to the indifference with which young gardeners treat that part of their business. The cultivation of vegetables of the higher class is certainly a most important branch of the gardener's duty, and the proposed exhibition of vegetables at the Drill Hall, should be a step in the right direction, and tend to induce young gardeners to study the best methods. But apart from growing vegetables for exhibition, it should be borne in mind by those young men who wish to become head gardeners, that when they attain that rank, they will be responsible for keeping up a regular supply, and should their employer find them incompetent in this direction, how ludicrous will be their position! The prevailing idea among journeymen is that kitchen garden work, in fact out-door work of any kind, is beneath their notice. This, however, is wrong; a thorough knowledge of the business is essential, and is the foundation of success as a journeyman and as a superintendent of others. *F. W., Frensham.*

EARLY APPLES: DEVONSHIRE QUARRENDEN.—After the winter and spring supply of home grown and foreign Apples, with their withered textures, and flavour evaporated, are exhausted, the supply of early English dessert varieties is welcomed as at no other season of the year. There is a freshness, juiciness, and sweetness in the texture and flavour of such varieties as Early Harvest, Gladstone, Irish Peach, Juneating, Devonshire Quarrenden, and others that we entirely miss in Apples of the previous year's growth, however well or carefully they may have been preserved. In view of the time approaching when new orchards and gardens will be planted with thousands of young trees this coming autumn, a useful service may be rendered by directing attention to a few of the many excellent early varieties we possess. The subject of this notice is not by any means the earliest of English Apples; but taking it all in all, it is one of the most satisfactory and best to plant. It is scarcely necessary to describe it, as everyone of any age who likes an Apple knows the Quarrenden. The variety is an old inhabitant of our gardens and orchards, being mentioned by Ray as far back as 1693, and it is included in Miller & Sweet's catalogue of 1790. As an orchard tree on the crab it succeeds admirably, and grows into a large-sized tree. It is equally suited to the garden, grown as a bush and budded or grafted on the Paradise Apple stock. The tree is very hardy, and one of the most prolific bearers. It is not so particular as many as to climate, succeeding perhaps better than any other early sort in the colder districts of our island. In the south, the fruit is ripe towards the end of July or early in August. If grown for the purpose of sale, it should be sent to the market as plucked from the tree; and for home consumption it is best gathered from the tree as it ripens. In this way it may be available for dessert from the end of July to the end of August. The fruit is of small size, and flattish-round in shape; the skin is smooth and shiny, mostly covered over with a purplish-red bloom; a heavy crop approaching ripeness reminding one somewhat of a purple Plum, so deep is the colour. The flesh is greenish-white, brisk, and juicy; the flavour is aromatic, sweet and pleasant to the taste. *Owen Thomas.*

THE NATIONAL CHRYSANTHEMUM SOCIETY AND THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—Though I was in charge of the National Chrysanthemum Society's outing to Paddockhurst on July 23, I was made aware for the first time through your columns that somewhere about the grounds on that occasion there was a box or boxes for contributions to the Gardeners' Benevolent Institution. I think it is highly probable that the great bulk of the company were as ignorant of the fact as myself. If Mr. Wadds had intimated to me his desire that this Institution should benefit from the visit, I would have mentioned the fact in the programme for the day, and made an appeal for support; or if Mr. Wadds had mentioned the matter in replying at the dinner to the toast of Sir W. D. Pearson's health, I am sure the response would have been a generous one. I know from personal knowledge that railway guards, drivers of conveyances, waiters, and all attendants are well rewarded on these occasions. The small amount found in the box is due therefore to want of knowledge on the part of the company, and a large number of those who were present were not directly connected with gardening, and probably quite ignorant of the existence of the gardening charities. At any rate, there are no grounds for assuming that the company was lacking in sympathy with these charities. I have now conducted fourteen of these outings, and never on any previous occasion has the gardener at the place visited expressed any desire that a gardening charity should be helped on such an occasion. On the other hand, I have, on two or three occasions, made an appeal at a meeting of my committee for support for the Gardeners' Orphan Fund by passing the hat round, and have always had reason to be gratified with the result. Five members of the committee of the N. C. S. have seats on the committee of the Orphan Fund, and many of the members are supporters of both charities. As the secretary of the N.C.S., I can point with pride to the subscription lists of both Institutions as evidence as to what I do personally in contributing to their support. *Richard Dean, V. M. H.*

PEACH-TREES.—Trees bearing heavy crops of fruit should have the soil about the roots examined, and if found to be dry, liquid-manure should be copiously applied. It is better to water the trees two or three times at intervals, till the soil has become thoroughly moistened, than to afford one heavy application. First loosen the surface slightly with a digging-fork, so as to allow the water to soak in more readily; and if the border is sloping, draw a little soil, so as to form longitudinal ridges to hold the water better. If artificial manure be applied, it should be lightly pricked in with a fork, and the water supplied gently through a rose watering-pot. The foliage should be kept free from red-spider and other insects detrimental to the welfare of the trees by the free use of the syringe or garden-engine, but no insecticides should be used after the fruits have attained a fair size. The young shoots must be kept neatly secured, and only those shoots should be reserved that are required for fruiting, &c., next year. Pruning Peach trees should be practised more or less, each time going over the trees throughout the growing season, so that but little winter pruning will be called for. Fine Peaches can only be grown when the foliage is kept clean and healthy, the border kept in a moist state, and the trees not too heavily cropped. This last is an evil frequently to be met with. *H. Markham, Wrotham Park, Barnet.*

CORNISH FERNS, ETC.—I found Adiantum [capillus veneris?] in two localities near Tintagel, one slightly inland, the other by the sea—both on rocky cliffs. Asplenium lanceolatum is fairly abundant on some of the walls around. Allium Schœnoprasum, Inula crithmoides, Daucus gummifer, Statice Dodarti, Anthyllis Dillenii, and Scilla verna, abound on the coast. The last was in fruit, but in spring large portions of the sloping downs must have been masses of blue, it grows so profusely. *D. Ross.*

THE WATER VIOLET. — In his delightful account of his botanising adventures, see p. 89 in a previous issue, the Rev. H. Friend makes a not uncommon mistake in associating the common name of Hottonia palustris with the faint violet colour of the flower. As a matter of fact, however, not the colour but the shape of the flower is responsible for the name. It was called Water Gilliflower (Gyrofflées d'eau of old French writers) on that account, but previously it had been known as Water Violet, a name it has retained on account of its bearing a resemblance to Stocks and Wallflowers. Dodoens figures the plant as Viola aquatilis, and says, "Flores — Leucoiis similes, sed minores," &c. *R. P. Brotherston.*

GRAPE "GALAAPORT."—Seeing Messrs. G. B. & Co.'s enquiry about Grape Galaaport, in the *Gardeners' Chronicle* of last week, a friend of mine, a native of South Africa, tells me that the Dutch name of the Grape is Hanapoot, meaning "Cock's leg." It is of excellent quality, much like the Muscat. *F. E. Grimsdick.*

THE LOQUAT TREE AT PACKINGTON HALL.—A few days ago, by invitation of the Countess of Aylesford, I went over to Packington to see Eriobotrya japonica in fruit. The trees, two in number, are growing in tubs in a conservatory. They are about 15 feet high, and proportionately well branched; some of the fruits had been gathered, but there were still about three dozen fruits towards the top of the trees on the occasion of my visit. The fruits are of about the size of small Apricots, of similar colour, peculiar and delicious in flavour, and useful, I should think, to give flavour to several things, also a handsome addition to the dessert. A rotten fruit which I cut open was even in that state sweetly scented. Owing to their unfruitfulness hitherto, Lady Aylesford told me she had often thought of doing away with them, but their fruiting so freely this year has obtained for them, and deservedly so, a further lease of life. The scent of the Loquat flower is deliciously sweet, so much so, that her ladyship told me it not only filled the conservatory, but also found its way through the corridors, far into the house. From my own observation, the Loquat in this country generally flowers late in autumn, a circumstance which in my opinion very much militates against the successful setting of its fruit. I was very pleased to see at Packington quite an average crop of Apples, Pears, and Plums on the walls, notwithstanding the scarcity of excellent crops on the same trees during the previous year (see note to the *Gardeners' Chronicle*, October 5, 1901, p. 264). Lady Aylesford has a fine assortment of choice herbaceous plants, extensively grown along the borders of the kitchen-garden. I was also afforded an opportunity of a walk through a portion of the park, which is richly studded with grand old Oaks, sturdy representatives of the ancient forest of Arden, of which Packington Park is said to have been the centre. My present notes, however, are not intended to generalise upon these. Suffice it therefore to say, that I much enjoyed my day amongst the sylvan loveliness of grand old Packington. *W. Miller.*

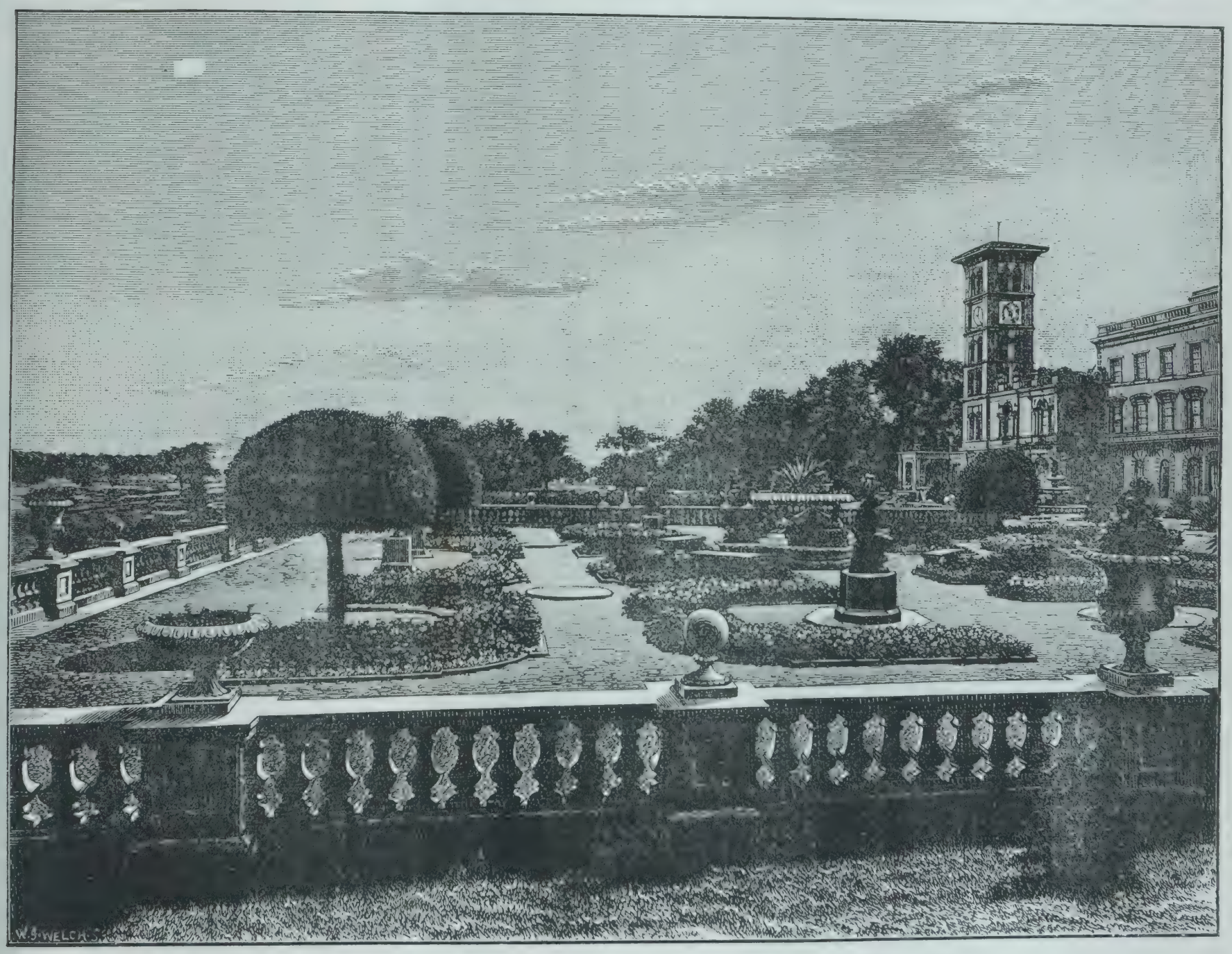


Fig. 42.—A view of part of the flower-garden at osborne. (see p. 118.)

SOUTH AFRICA.

WINTER IN THE CAPE PENINSULA.

This is winter in South Africa, and for over a month we have had weather in Cape Town which would not disgrace a wet October in England. The rain often falling in lines as thick as an ordinary pencil, and by way of variety, as fine as a Scotch mist. This state of things is relieved by occasional dry days as lovely and as delightful as the finest sunny May days that occasionally fall to the lot of Old England—so fine indeed are these dry days that one feels compensated for the inconvenience of the preceding wet days. "Beastly climate," however, is not an uncommon phrase one sometimes hears from a man from Liverpool, Manchester, and Birmingham, as it is so like what he had left behind, minus the extreme cold. It can be a bit cold in South Africa, all the same. June has been unusual in this respect; up country we have heard of trains being snowed up, sheep and cattle smothered in snow-drifts, and a troop of soldiers having to be dug out.

If we had a little more of this "beastly weather" in the Colonies of the southern hemisphere, they would be the granaries of the world, but I suppose all is for the best in this the best of all worlds. Our eyes are on Lord Milner: he has just taken away the editor from Cape Town of the *Journal of Horticulture*, an Australian who has only been a short time here, so we take it he means to boom agriculture in the two late Republics, and go in for irrigation, and we wish him success, as the salvation of Cape Colony will greatly depend on the success of the High Commissioner in the new territories. For some weeks we have had a great fight between the Suspensionists and the Anti-Suspensionists, daily the columns of the newspapers are filled with these subjects. Sir Gordon Sprigg has scored in London,

and is now, I suppose, on his way to the Cape to try his hand in reconciling the conflicting elements. The all but universal opinion is that he will fail, and should the Bond get the upper hand, it is supposed, that any progress made in the country will be independent of the Government. But the great questions of land settlement, immigration, and irrigation, will stand still, as the Parliament will be in the hands of the wire-pullers who gave a prolonged life to the war. Nothing on the platform or in the newspapers interferes with the forces of Nature. The rain and the cold weather wake up the sleeping beauties which have lain dormant during the last six months. The bulbous plants are spearing through the softened soil on the flats around Cape Town; in the moistened sands Strumaria crispa offers sheets of bloom at present; Lachenalia rubida has come and gone; Lachenalia pendula and tricolor are in full flower. Amongst the latter are some very fine and distinct things. I have noticed some with the upper part of the flower yellow, and feel sure if some lover of bulbous plants were to invest in a few thousands of L. tricolor, plant out a large frameful, select out the finest and most distinct, there would be a boom for them, which would divert attention from Orchids. If they were as hardy as Daffodils, they would compete even with these popular and progressive favourites. They are not difficult to handle, and might be seen in every cottage window if they had a good start. Consider what our late good and noble friend the Rev. John Wilson did with Lachenalias in a spare room with a bay window and a flower-stand! Following L. tricolor will come L. aurea, and a lot of fine species. I wish I could induce some one to take the genus up. Then, again, they are amenable to the operations of the hybridiser. To see L. aurea in its best dress is a grand sight, compared with the miserable little spike of flower I have seen in England; and the same may be said of L. tricolor, strong bulbs give grand flowers and foliage. When I saw magnificent spikes of bloom of L. tricolor and aurea at the Daffodil show in Melbourne, 1900, I stood amazed, and these were grown in the borders along with Daffodils.

The English Oak is a fine plant at the Cape. It has only lately commenced shedding its leaves; they are not all off yet, and the new leaves are coming out, giving to the Government Avenue a noble appearance, and the surrounding quarters, consisting of six large oblong blocks of grass, carefully attended to the year round, always green, but just now a rich emerald-green. Truly, Cape Town is a favoured and romantic spot. On the one side Table Mountain and the Devil's Peak; on the other the Lion's Rump, at the end of which is the lion in repose, from which the great artist might have modelled those noble lions which grace the base of Nelson's Monument in Trafalgar Square. When a white cloud rests on our lion's head in the morning out here, we need fear no rain before sundown, so we enjoy it as an ornament and a weather indicator. On the Lion's Rump and all about the hills Stapelias are now flowering. Hessia spiralis is at present in full flower in damp places on the mountain slopes around Cape Town. *Peter Barr, V.M.H., Cape Town.*

PLANT PORTRAITS.

CELSIA ARCTURUS, Jacquin.—*Revue de l'Horticulture Belge*, August.

ERIOSTEMON MYOPOROIDES.—*Revue de l'Horticulture Belge*, August.

[illegible]LIA VITIFOLIA.—*Moniteur d'Horticulture*, July.

MIGNONETTE IN POTS.

FEW plants are so pleasing or useful in the winter as the Mignonette, but in order to produce flower-spikes of good size special preparations must be made.

Mistakes which are often made are:—1. The soil not made very firm in the pots; 2. Lack of ventilation; and 3. Drought at the root; any one of these is enough to spoil the plants, but when the three mistakes are made simultaneously, failure is the result. In order to have a succession of flowering plants two sowings should be made, the first in July, and the second in the present month. Take as many 6-inch pots in a clean state as are required, crock them well, and fill them to within ½ inch of the rim with a compost consisting of turfy loam of good quality, sand, a small quantity of leaf-soil, and manure, such as crushed bones or Clay's fertiliser. Make the soil in the pots very firm, as this state of the soil produces sturdy growth, instead of that which is soft, succulent, and devoid of flowers. After the soil is made firm with a rammer, scatter a little loose soil on the surface, and in this sow the seeds rather thickly, because it may fail to germinate in a few places; cover it lightly with finely sifted soil, and place the seed-pots in a cold frame. Afford water with a fine-rose can, place sheets of paper over the pots, and leave them till the seeds germinate.

The seedlings being up, afford air in abundance day and night, and when the plants have made two leaves each, single them, transferring the sturdiest of the thinnings into other pots, and fill up gaps in the seed-pots. A second thinning should take place in a short time afterwards, five to seven of the strongest plants being then left at regular distances apart over the entire surface of the soil. When the plants reach 3 inches in height pinch out the point of each stem, and thus induce two or three shoots to form, which in time will completely cover the soil.

When the plants have started into good growth, secure each separately to neat sticks or pieces of wire. At this stage some gardeners repot the plants, using 8½ or 10-inch pots, the reason they give being that it prevents the stems getting too hard, and hindering the future growth and flowering. I do not advise this practice, unless it is done by well experienced men, because the plants at this stage are very succulent, and the least disturbance will break the stem; therefore it is best to let the plants remain in their pots all through the season, and to apply weak liquid manure frequently instead of repotting the plants. Apply to the pricked-out plants liberal shading when the sun is very hot, and damp them frequently with a fine rose water-pot until rooted, when shading must be dispensed with, except for a few hours at midday.

The application of water to Mignonette must be carefully performed, and in hot weather pot-bound plants will require water twice or thrice a day, remembering however that any excess causes yellow sickly foliage, and ultimately the death of the plants; and lack of water causes premature ripening of the growth, with the result that the flower-spikes are small. As soon as it is found that the plants are pot-bound, manure should be applied, either dissolved or mixed in the water, or as top-dressings. I am an advocate of the last-named method, because it brings a quantity of the roots to the surface in search of nutriment, whereas water passes away too quickly to benefit the plant to any great extent. Many gardeners stand the plants out-of-doors on a bed of coal-ashes, exposed to heavy rains, which causes a soddening of the soil, and for two years my plants were spoiled in that way. It is better to keep them in cold frames near the glass, and far enough apart to prevent drawing, the lights being put on if rain threatens. This method spares the gardener much trouble, as it is not everyone that would get out of bed on a stormy night to cover a few pots of Mignonette, however precious they may be. If the plants are wanted for greenhouse decoration, procure for them a light, airy house, and place them near the glass, and above all do not crowd them together. *John Denman, Brynbella, Tremeirchion, St. Asaph.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

AUGUST 5.—*Present:* Dr. M. T. Masters, F.R.S. (in the Chair); Messrs. Douglas, Hooper, Bowles, Saunders, and Baker; Dr. M. C. Cooke; Revs. W. Wilks and G. Henslow (Hon. Sec.).

Potato tumour.—Dr. COOKE reported on the specimens sent to the last meeting, which were attacked by a fungus named Chrysophlyctis endobiotica, and has never yet been described, though the disease, Dr. Masters observed, was not uncommon.

Larch disease.—This had been referred to as a fungus of the name Allescheria laricis, which was unknown to Dr. Cooke. It turned out to be merely a "M.S." name, with no description attached, and therefore afforded no solution to the problem of the disease.

Silver-leaf disease.—Dr. COOKE also reported upon this well-known affection of species of Prunus, which has been found by Prof. J. Percival to be due to a fungus the hyphæ occurring where the roots are decayed which produced sporophores of Stereum purpureum. By inoculating healthy Plum-trees with the sporophores, the silvery appearance was visible after eight or nine weeks. The infection appears to take place below ground.

Influence of scion on stock.—Mr. W. B. LATHAM, of the Botanical Gardens, Edgbaston, Birmingham, sent a bough of a Laburnum, from which a cluster of shoots of Cytisus purpureus had grown out. It appears that the tree was purchased some twenty-seven or twenty-eight years ago as a young grafted plant of C. purpureus on C. Laburnum. The scion grew very well for a year or two on the stock, till a strong shoot grew out below where the graft was inserted. This was cut off to save the graft, but the graft died quite out soon afterwards. The stock was left to grow into a Laburnum tree, which is now from 15 to 20 feet high, and as much in diameter. After some three or four years the C. purpureus made its appearance in various parts of the Laburnum, and is now to be seen in tufts all over the tree. A somewhat similar case is recorded in the *Gardeners' Chronicle*, 1857, p. 382, by Mr. E. Purser, Clapham Park. He wrote: "Some few years ago three grafts of the Cytisus (purpureus) were inserted, and now the whole character of the tree is changing, and every year since losing the yellow flower of the Laburnum and producing the short purple flower."

Cattleya and Lælia Cross.—Mr. DOUGLAS exhibited a plant, L.-C. Juno, Edenside var., the result of crossing C. Mossiæ with L. majalis. It is usually considered an invariable rule that hybrid Orchids betray the characters of both parents; the present plant, though an undoubted cross, was thought to be exceptional in this respect, showing relatively little of the Cattleya. A coloured illustration which Mr. Douglas exhibited of C. Mossiæ, together with the plant, showed a degree of yellow in the throat which was wanting in the living plant. L. majalis has a very spotted lip, but this feature was also wanting in the plant. That a cross or hybrid, though usually intermediate, may have one or other parent prepotent is well known; but the second generation, as Dr. Masters observed, will often reveal the other parentage more completely.

Gypsophila paniculata dimorphic.—Mr. HENSLOW called attention to the fact that different plants of this species may have different kinds of flowers, being gynodioecious—that is, in some the styles are greatly elongated while the stamens are abortive; in others the styles are much shorter and the stamens perfect.

spread outwards, and not inwards, as in the case of self-fertilising plants.

Dendrobium Dalhousieanum synanthic.—Dr. Masters exhibited a specimen (received from Mr. W. Potter, Beckenham) of two flowers coherent by their ovaries and the two adjacent sepals, all the other parts being distinct.

Proposed Investigations.—Mr. Elwes wrote, in reference to the Larch disease, of the difficulty experienced in obtaining any assistance from a practical point of view in dealing with what was proving to be a very serious disease among trees, and one of immense economic importance. He suggested that if a qualified person could be found, he should undertake a systematic investigation, for which a small grant from the Royal Society would most probably be forthcoming. Mr. Elwes adds that the disease cannot be studied in the laboratory alone, but only profitably by visiting places where it has appeared, so as to discover the conditions which produce it.

NEWBURY HORTICULTURAL.

August 4.—The above society can well claim to be one of the oldest in the kingdom, and it is still one of the best, though like many others which hold their own, outside or variety shows have to be added; still, the committee and secretaries are to be congratulated for good work done, and their fifty-fourth exhibition was, from a horticultural point of view, a very meritorious one. The show was held in Coldwell Park. The greatest prizetaker, and one who added not a little to the attractions of the show, was Mr. C. Ross, who took forty 1st and 2nd prizes, and in addition he becomes the holder of the Hannington Champion Shield, given to the exhibitor who secures the most points at the show. In the open classes Mr. Ross also secured the Royal Horticultural Society's Silver Flora Medal for the highest number of 1st prizes taken.

Plants.

For six stove and greenhouse plants in bloom there was a good competition. Mr. C. Ross, gr., Welford Park, Newbury, was 1st with an immense Hydrangea Hortensia, which had no fewer than 102 heads of flowers; an excellent Allamanda, and Stephanotis grandiflora. Mr. T. Surman, gr., Donnington Grove, was a close 2nd with very good plants, but seen scarcely at their best; Mr. Leith, gr., Beaurepaire Park, was 3rd.

In the foliage plants competition Mr. C. Ross was a long way ahead of all others with his splendidly-coloured Codiæums and capital Palms, and Mr. T. Leith was 2nd.

In the Fern competition for collection of exotic Ferns, Mr. Leith was well ahead of Mr. C. Ross with large well-grown specimens.

For the best specimen plant in bloom, Mr. C. Ross was 1st with a remarkable plant of Hydrangea Hortensia; and Messrs. T. Abery & Sons, Tilehurst, were 2nd, with a very good plant of Plumbago capensis.

Mr. C. Ross was 1st for one foliage plant, with a large specimen of Areca lutescens.

In the smaller plant class for Coleus, Messrs. Surman and Cox were the leading exhibitors, having well-grown plants. The Fuchsias, always an interesting class at Newbury, were less good than usual; still, some of the plants were very fine, especially those shown by Messrs. Surman, Ross, and Cox, the exhibitors taking the prizes in the order of their names.

Gloxinias were of great merit, and Mr. J. King was 1st for a splendid lot of plants; whilst Mr. C. Ross was an easy 1st in the arrangement of a conservatory—a feature at Newbury that forms a pleasing departure from the usual rather formal groups. The plants were staged on a low stand measuring 10 feet by 5 feet. Mr. C. Ross's collection consisted entirely of plants having ornamental foliage. Mr. H. Cla nd for a collection of flowering and foliage plant

Cut Flowers.

These were very good and abundant, and the awards were given to those showing the best arrangement. Here, Mr. W. T. Abery was 1st; Mr. Smith, Horris Hill, 2nd; and Messrs. Baker, 3rd. For Roses, Messrs. G. Cooling & Son, Bath, had a stand of twenty-four blooms, which, considering the lateness of the season, were particularly fine; Mr. Mead, Bath, was a very close 2nd; and Mr. J. R. Tranton, Hanley, 3rd. In the smaller classes for Roses, Messrs. Evans, Mead, and Mara, had the best stands.

Dahlias.

Florists varieties were well shown by Messrs. Tranton and Bosley, the last named gardener having beautiful Cactus varieties, but this was a breach of the conditions and was not allowed to stand. Doubtless, the feature of the show was the Ladies competition in Luncheon Table Decoration. In this class there were eight competitors, and the judges in all cases gave the awards for simplicity and elegance. Miss Laura Harold, was 1st with red and yellow Iceland Poppies and Grasses; Mrs. C. Attewell, 2nd; and Mrs. Wilson, 3rd.

Fruit.

This was well staged, especially black Grapes. Mr. Mara, was 1st; Mr. Lees, 2nd. Mr. C. Ross had the best Muscats, but they were scarcely finished; Mr. Maher was 2nd. For other white varieties, Mr. Maher led; and Mr. C. Ross was 2nd. The gardeners, Messrs. Leith, Lees, and Maskell, had the best Melons, and Messrs. Leith and Ross had very fine Peaches; Plums were small, and no Apricots were shown; and for Apples and Pears it was too early, the season being late. Mr. C. Ross was one of the leading exhibitors in the hardy fruit classes.

Vegetables were good, but not up to the usual high standard of excellence. Many amateurs staged some very fine produce. *G. W.*

BRITISH PTERIDOLOGICAL.

This Society held its customary annual meeting, which was very well attended, on the August Bank Holiday, at the Institute, Bowness, Windermere.

After the formal business had been transacted, which included the election of Dr. F. W. Stansfield as president, Mr. Chas. T. Druery not offering himself for re-election, having held the chair for several years, two very interesting papers were read, one by the President, on the "Lady Fern," and the other by Mr. J. J. Smithies, illustrating by means of dried fronds a very large series of intermediate variations of Lastrea propinqua (a subspecies of L. filix-mas) between the normal and prevailing type and some very fine varieties found by the author of the paper. Although undoubtedly the specimens, some twenty or thirty, demonstrated a gradation, they afforded no evidence that the extreme forms were arrived at by subsidiary steps, a theory which is largely discredited by the existence of so many marked variations having been found in other species without such ostensible linking forms having been discovered. The exhibition of so many varieties in one species and in one direction, which involved a great amount of labour in collecting on the part of Mr. Smithies and his co-worker, Mr. Forster, was unique in its way.

The chief interest of the meeting, however, centred in the demonstration by other exhibits, especially by Mr. P. Neill Fraser, of Edinburgh, and Mr. J. Edwards, of Manchester, of the marvellous extent to which wild "sports" in Ferns can be developed by selective culture. On no previous occasion has this been so clearly shown by the presentation of really exquisite forms, derived in some cases from finds of little promise. Mr. Edwards showed at least twenty most delicate types of what is known as the "setigerum" or bristly section of the Lady Fern varieties, some of them, curiously enough, merging into other quite distinct sections, and only differentiated by the bristly feature. It is impossible to convey by mere description the delicacy of cutting and grace of form of many of the exhibits. Setigerum as found by Mr. Garnett, of Bowness, may be roughly described as bristly, normal, uncrested; but from the outset its spores yielded a large percentage of greatly improved bristly and finely tasselled forms, with some tendency to revert. Mr. Edwards's exhibits, however, were nearly all uncrested, and simply refinements of the original, while the tendency to dimorphism or reversion appears to be altogether eliminated.

Mr. Fraser's exhibits consisted of some sixty odd green fronds of Polystichum angulare, raised from spores from the late Mr. E. J. Lowe's collection; the bulk of these were obviously crosses, few of which were other than "curios," caudate, narrowed, cristate, &c., but about half-a-dozen exemplified an entirely new section in the family which was appropriately named "Adiantoides." The fronds of this section are very broad and decompound, and the ultimate divisions cuneate, and borne in long stalks, the effect being to transform the long lanceolate, close-set, bipinnate frond of the species into an absolute imitation of a dense Adiantum. In Asplenium Trichomanes a new wild find was shown by Mr. T. Bolton, a true plumosum (incisum), but differing from previous finds in having the deeply-cut pinnæ curled (Asp. v. incisocrispum). This is certainly the finest form yet discovered.

Finally, it was resolved that the Society would, in future, issue Certificates of Merit for varieties brought before it in the shape of plants at its annual meetings, and finders or raisers, whether members or not, are invited to avail themselves of the opportunity thus afforded for competent judging.

Fig. 43.—Swiss châlet and children's garden at Osborne. (see p. 118.)

THE MIDLAND CARNATION.

AUGUST 7.—There is no lack of interest in the Carnation as an exhibition flower, perceptible in the Midlands. Judging from the large number of entries made on this occasion a very substantial increase of growers and exhibitors is apparent. The entries in the white ground Carnation and Picotee classes were very good, in those for Selfs, Fancies, and yellow grounds phenomenal, and especially in the classes for undressed flowers, though the schedule of prizes sets forth that "Although a little dressing of the petals will be admitted, as little dressing as possible is desirable." As usual the Exhibition took place in the show house at the Birmingham Botanical Gardens. There was a back ground of finely flowered Fuchsias to most of the blooms, while overhead were two very fine examples of Bougainvillea glabra; and the plant-houses, which are just now extremely gay with flowering subjects, were all thrown open to visitors. Mr. Latham drapes all his tables with a ruby red material in lieu of baize, which appear to be extremely appropriate. One commendable feature about the Midland schedule of prizes is, that a large number of awards is made in each class.

The quality throughout was for the season very good The class for twelve selfs takes the 1st place in the schedule. Mr. R. SYDENHAM, Bristol Road, took 1st prize with some finely developed blooms of Sappho, a very fine rose; Hildegarde, white; Exile, deep rose; Almoner, yellow; Queen of Scots, The Maid, Boreas, and Her Grace, these were the finest. Mr. R. C. CARTWRIGHT, King's Norton, came 2nd, he had Orpheus, deep rose; Ensign, a richly fragrant and very fine white Carnation; Her Grace, blush; Much the Miller, white; and Benbow, buff, very distinct. Mr. C. F. THURSTAN, Wolverhampton, was a very good 3rd. There were nine competitors in this class, and fourteen with six blooms. Mr. A. W. JONES, Handsworth, taking the 1st prize in the latter with superb blooms of Hildegarde, Britannia, Mrs. Eric Hambro. Lady Hermione, delicate pink; Much the Miller, and The Sirdar, rosy scarlet. The Rev. C. A. GOTTWATZ was 2nd.

There were five exhibitors of twelve yellow ground Picotees, they are yet a scarce section, and it is not an easy matter to secure twelve varieties. Messrs. THOMSON & Co., nurserymen, Sparkhill, gained the 1st prize with finely developed blooms of Lady Bristol, Lady St. Oswald, Badminton, Heather Bell, Mrs. Herbert, Mohican, Gnome, and Childe Harold, as the finest. Mr. R. C. CARTWRIGHT, who had excellent blooms of Lady St. Oswald, Alcinous, Onde, Childe Harold, and Lauzan, was 2nd. Messrs. ARTINDALE & SON, Sheffield, were 3rd.

There were fifteen exhibitors of six varieties, Mr. A. W. JONES, taking the 1st prize with well finished blooms of Lady Bristol, Lady St. Oswald, Edith, and Gertrude in particular. Messrs. BLACKMORE & LANGDON, were 2nd, also with excellent blooms.

Ten exhibitors contended with twelve Fancies, and very fine blooms were generally staged. Mr. R. C. CARTWRIGHT was awarded the 1st prize with Argosy, Queen Bess, Voltaire, Hidalgo, Renegade, Muleteer, Helios, Pagan, and Charles Martel, these being particularly fine. Messrs. THOMSON & Co., were 2nd.

There were eleven entries of six fancies, and again Mr. A. W. JONES took the 1st prize with grand blooms, especially of Elaine, Eldorado, Argosy, Aglaia, and Author; Mr. J. F. SMITH, Sparkhill, was 2nd.

White ground Picotees were represented by six stands of twelve distinct varieties. Messrs. THOMSON & Co. were placed 1st with full, pure, well edged blooms of red edged Brunette, John Smith, and Thomas William; purple edges, Muriel, Mrs. Openshaw, Amy Robsart, and Pride of Leyton; rose edges, Little Phil and Mrs. Beswick; scarlet edges, Mrs. Sharp, Favourite, and Fortrose. Mr. A. R. BROWN, Handsworth, was 2nd.

With six blooms, of which there were seven exhibitors, Mr. F. W. GOODFELLOW was 1st; and Mr. J. J. KEEN, Southampton, 2nd.

White ground Carnations were a little less numerously shown. Messrs. THOMSON & Co. had the best, and they showed a great improvement upon the blooms seen in London. Of scarlet bizarres there were Robert Lord, Admiral Curzon, and Robert Houlgrave; crimson bizarres, J. S. Hedderley, Master Fred, and J. D. Hextall; pink and purple bizarre, William Skirving; scarlet flakes, Sportsman, and John Wormald; purple flakes, Gordon Lewis, and George Melville; and rose flake, Meteor, a very fine new variety, handsomely marked, and having finely formed petals. Messrs. PEMBERTON & SON were placed 2nd, having very good blooms. Mr. D. WALKER took the 1st prize with six varieties, having bright, clean flowers.

The undressed flowers shown either in threes or as single blooms were very fine generally, and consisted largely of the varieties already named. The best twelve selfs, one bloom of each on long stems, came from Mr. R. C. CARTWRIGHT, though some protest was raised against the flowers being over-dressed by the turning down of the points of the calyx. Messrs. ARTENDALE & SON had the best twelve blooms of yellow-ground fancies; and Mr. W. H. PARTON the best twelve of any type shown in threes.

There were six classes for blooms of one variety shown in threes; in that for white, blush or pale pink, Mrs. Eric Hambro, white, was placed 1st and 2nd; rose-salmon or scarlet selfs were represented by Mrs. A. Gilbert, bright rosy-red; and Sappho, rose-pink. The best yellow, buff, or terra-cotta self was Pandelli Ralli, yellow; and Britannia, also yellow. The best dark self was Comet, crimson; Nubian, maroon, was placed 2nd. Mohican and Twilight were the best yellow-ground Picotees; and Eldorado and Golden Eagle the best yellow-ground fancies.

In the classes for single blooms the awards were Carnations S.B. Robert Houlgrave, which took the first four prizes; so did C.B. J. S. Hedderley, P.P.B. Geo. Rudd, and William Skirving; S F. Sportsman and John Wormald; R.F. Meteor (very fine) and Merton; P.F. Gordon Lewis and Geo. Melville. Picotees H.RedE. Brunette and John Smith; L RedE. Mrs. Gorton and Thomas William; H.P.E. Mrs. Openshaw and Miriam; L P.E. Pride of Leyton and Somerhill; H.RoseE. Little Phil and Mrs. Beswick; H.S.E. W. A. Johnson and Scarlet Queen; L.RoseE. Fortrose and Nellie; Y G.P. wire-edged Childe Harold and Gertrude; heavy edges, no names; Y.G. fancy, Oakleaf; fancy, other than Y.G., Millie and Artemis.

There were classes also for selfs in colours. The best white was Mrs. Eric Hambro; yellows, Britannia and Almoner; buff or terra cotta, Mrs. R. C. Cartwright, orange-buff; rose, pink, or salmon, John Pope, a very fine new rose self, and Sadek; scarlet, Isinglass; dark crimson or maroon, Miss F. Sims and Sir Bevys.

Premier Blooms.—Bizarre Carnation, S.B. Robert Houlgrave; Flake, S.F. Meteor (new); H E.W.G. Picotee, H. Red Brunette; L.E.W.G. Picotee, P E. Pride of Leyton; H.E.Y.G. Picotee, Gertrude; L E.Y.G. Childe Harold; Y.G. Fancy, Eldorado; Self, Mrs. F. Sims (new), bright maroon.

Certificates of Merit were awarded to the following new varieties:—Self, Mrs F. Sims and S.F. Meteor, both from Messrs. THOMSON & Co.; and to a bright rose self, John Pope, exhibited by the Rev. C. A. GOTTWATZ.

Bouquets, sprays, and buttonholes formed of Carnations were also shown; and there were plenty of very fine Sweet Peas in the class in which special prizes for twelve bunches were offered by Mr. R. Sydenham; and small tables bearing a floral arrangement of Sweet Peas and foliage were very good.

The weather was very wet, but a good number came to see the display, which had added features of interest in collections of cut flowers shown by Messrs. A. Perry, R. R. Davis (Begonias), Hewitt & Co, White & Son, Dicksons, Ltd., W. Sydenham, Phillips & Taylor, S. Mortimer, and others.

FRENCH NATIONAL CHRYSANTHEMUM.

THE seventh annual Congress and show of the above society will take place on November 7, 8, and 9 next, at Angers. Full particulars are given in the last issue of the society's official publication *Le Chrysanthème*. In the same issue we learn that the society now consists of 678 members, of which thirty-nine are affiliated societies, a very remarkable increase considering its youth.

We note that M. Rozain contributes a short obituary notice on the late Simon Délaux, once a famous raiser of new Chrysanthemums. He was a Vice-President of the French National Chrysanthemum Society, and rendered signal service to the cause of French horticulture by his numerous excellent novelties in days long anterior to those when Ernest Calvat first appeared on the scene.

Some time ago it was mooted that a colour chart should be published by the society, so that there should in future be some uniformity in describing the colours of flowers. A note by the Secretary explains what is being done in this direction. It certainly would seem to be desirable that some standard should be set up, for it is extraordinary the great diversity that exists, even among persons accustomed to describe the colours of flowers, in naming colours, especially in Chrysanthemums.

The text of various papers, not included in former issues, that were read at the Bordeaux Conference, completes the number.

ESTATE MANAGEMENT.

INTRODUCTORY.—Few subjects have been less written about than that with which I now attempt to deal, namely, the practical management of landed estates. Although there are a large number of gentlemen immediately and directly associated with the management of some of the largest and more valuable and important estates both in England and Scotland whose names have become household words, not only in the estate agency and factorial profession itself, but in the agricultural, arboricultural, and horticultural professions as well; yet it is a remarkable fact that with the exception of an occasional letter or paragraph in one or other of our agricultural contemporaries, one seldom if ever sees a single, far less a series of articles from the pen of any of those gentlemen. We do not believe the subject to be incapable of being treated in a thoroughly businesslike manner; but what does surprise us is that we do not at least once and again have the mature and valuable experience of a few of our more enthusiastic, energetic and capable English estate agents and Scottish estate factors, in the shape of an article on some of the more prominent subjects connected and associated with estate management.

Having regard to the following three facts, namely, that (1) three-fourths of the land in Scotland are managed within a radius of 500 yards from St. Andrew's Square, Edinburgh (that is to say, the majority of Scottish landed estates are managed by lawyers and solicitors resident in Edinburgh and known in Scotland as the Lawyer-factor); (2) the recent numerous sales of extensive landed estates, both in England and Scotland, but more especially the latter, and, thirdly, to the so called agricultural depression, which, by the way, is now, more or less, a dead letter, besides a number of other minor considerations, I believe I share the views and voice the opinion of a large number of my colleagues, when I say that it is high time something was done to arouse ourselves from the lethargic state into which we have too evidently fallen, and take up the cudgels with the view to elicit, and it may, perhaps, be to impart some useful intelligent and instructive knowledge, and otherwise enlist the sympathy of our practical and courteous estate agents and factors. Again, in the second place, while recognising the somewhat delicate (for I am compelled at times to consider it a delicate subject) nature of the ground on which we tread, and while admitting our inability to deal with what might very properly be called a complicated subject in that business-like capacity to which so paramount a subject is justly entitled, yet it would be idle to disguise the fact that scanty attention has been given to the study of so highly important and interesting a profession as that of the estate agent or factor. But here the question may be raised that the profession is an exclusively private one, and that practical estate agents, however much they may desire, do not care about entering into controversy with regard to the administration and conduct of the estates under their management and control. I do not believe that any of our proprietors would object in the least to their estate agents and factors giving their opinions, or otherwise expressing their views on the general question of practical estate management. Nay, rather, on the contrary, it would, I am sure, be a source of pleasure to many of our proprietors to know that their agents and factors were not only able business men, but otherwise took an active and intelligent part in the conduct and administration of all branches and departments of the estate under their supervision and control.

What, however, I have more particularly in view here is the publication of concise articles dealing especially with the management of our landed estates from a practical standpoint. I do not pretend or claim to achieve much more than merely to raise a few questions. I do not propose to follow any hard-and-fast rule or principle with regard to the appearance of the subsequent articles. My first article will be "The Estate Agent or Factor, and his duties." *W. M.*

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period August 3 to August 9, 1902. Height above sea-level 24 feet.

1902. August 3 to August 9.	Direction of Wind.	Temperature of the Air. At 9A.M. Dry Bulb.	At 9A.M. Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 3	W.S.W.	60·7	55·9	67·0	53·9	0·03	60·6	59·5	57·5	48·6
Mon. 4	S.W.	55·5	54·0	67·3	51·7	0·07	60·3	59·5	57·5	44·8
Tues. 5	W.S.W.	64·1	59·1	72·0	54·0	0·17	61·8	59·7	57·5	51·5
Wed. 6	S.E.	61·1	60·8	68·0	58·5	0·61	62·7	60·2	57·5	51·4
Thu. 7	S.W.	63·7	60·2	69·8	54·2	0·02	61·8	60·3	57·5	46·2
Fri. 8	W.S.W.	61·9	58·8	67·4	57·9	0·02	62·8	60·5	57·7	54·5
Sat. 9	W.S.W.	56·6	52·2	60·6	48·2	0·02	61·0	60·6	57·8	41·9
Means	...	60·6	57·3	67·4	54·1	Tot 0·94	61·6	60·0	57·6	48·4

Remarks.—The weather during the week has been dull and cold; rain fell every day, and was very heavy on the afternoon of the 6th.

GENERAL OBSERVATIONS.

The following Summary Record of the weather throughout the British Islands, for the week ending Aug. 9, is furnished from the Meteorological Office:—

"The *weather* during this week was again cold and unseasonable, with much cloud and frequent rain in all districts. Thunderstorms occurred in several localities, the most important being those experienced over eastern England on Wednesday and Thursday.

"The *temperature* was below the mean in all parts of the kingdom except the Channel Islands. The deficit ranged from 1° in England, S. and S.W., and 2° in Ireland, S., to 4° in England, N.W. and Scotland, E., and to 5° in England, N.E. The highest of the maxima were registered on very irregular dates, and varied from 76° in England, S., and a little above 70° in several other districts, to 65° and 64° respectively in Scotland, W. and N. The lowest of the minima, which were recorded towards the end of the week, ranged from 35° in Scotland, E., and 38° in Scotland, W., to 40° or a few degrees above over the kingdom as a whole, and to 55° in the Channel Islands.

"The *rainfall* was much in excess of the mean over eastern and central England, and also in the south of Ireland, and rather more than the normal amount in the Channel Islands, and in nearly all the other English districts. In England, S.W., Ireland, N., and over Scotland, however, there was a deficit.

"The *bright sunshine* was very deficient throughout the entire kingdom. The percentage of the possible duration ranged from 35 in the Channel Islands, 30 in Ireland, S., and 29 in England, S.W., to 20 in the Mid- and Counties, 16 in England, N.E. and Ireland, N., and to 15 in Scotland, E."

THE WEATHER IN WEST HERTS.

The past week has proved the fourth unseasonably cold one we have now had in succession. During this cool period the days have all been more or less unseasonably cold, and on only five of the nights was the extreme minimum reading above the mean for the time of year, while on six nights the thermometer exposed on the lawn fell to within 7° of the freezing-point. At 2 feet deep the soil is now 2° colder, and at 1 foot deep 3° colder than is seasonable. Rain fell on four days of the week, and to the total depth of about 1¼ in. On the 6th over half an inch of rain was deposited, making this the wettest day experienced here since the middle of March, or for nearly five months. During a very heavy shower on the afternoon of the above date rain was falling for six minutes at the mean rate of nearly 2 inches an hour. None of this rain has found its way through the percolation gauge covered with short grass, but about half-an-inch has come through the bare soil gauge—equivalent to a watering of 2½ gallons on each square yard of surface in this district. The sun shone on an average for only 4½ hours a day, or about an hour a day less than the mean for the season. The winds have again been, on the whole, light, while the air remained for the most part very damp for a summer month. *E. M., Berkhamsted, August* 12, 1902.

MARKETS.

COVENT GARDEN, *August* 14.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Vegetables.—Average Wholesale Prices.

	s.d.	s.d.
Artichokes, Globe, per dozen	1 6	2 0
Beans, dwarf, per sieve	1 6	2 0
— Broad, per bushel	1 3	1 6
— Scarlets, bus.	4 0	5 0
Beetroots, per dozen	2 6	—
Cabbage, p. tally	3 0	5 0
Carrots, per doz. bunches	0 9	1 0
— bag (washed)	6 0	—
Cauliflowers, per dozen	2 0	3 0
Celery, per bundle	0 9	1 0
Cress, per dozen punnets	1 3	—
Cucumbers, per dozen	1 6	2 6
Endive, new French, p. doz.	1 6	2 0
Horseradish, foreign, p. bunch	2 0	2 6
Leeks, 12 bunches	1 0	1 6
Lettuces, Cos, per score	0 6	1 0
— Cabbage, per dozen	0 3	0 6
Marrows, Vegetable, dozen	1 0	—
Mint, doz. bunches	1 0	1 6
Mushrooms, house, per lb.	0 9	0 10
Onions, new, green, doz. bunches	2 0	2 6
— bag	5 0	—
— foreign, case	6 0	7 0
— picklers, per sieve	2 6	3 0
Parsley, doz. bun.	1 0	1 6
— sieve	0 6	1 0
Peas, English, per bushel	1 6	3 0
— bag	4 0	5 6
Potatos, per ton	70 0	110 0
Radishes, p. doz. bunches	0 9	1 0
Salad, small, punnets, per doz.	1 3	—
Shallots, per doz.	0 2	—
Spinach, English, bushel	2 0	2 6
Tomatos, English, per doz. lb.	3 0	4 0
— Channel Ilds. per lb.	0 3	0 3½
Turnips, new, per dozen	2 6	3 0
— bags	5 0	—
Watercress, per doz. bunches	0 3	0 6

Cut Flowers, &c.—Average Wholesale Prices.

	s.d.	s.d.
Achillea, per doz. bunches	1 0	2 0
Arums, per doz.	2 0	4 0
Asparagus Fern, per bunch	0 6	1 6
Asters, per dozen bunches	4 0	12 0
Coreopsis, per doz. bunches	0 9	1 6
Eucharis, per dozen	2 0	3 0
Carnations, per bunch	0 6	1 6
Gaillardia, dozen bunches	1 0	1 6
Gladiolus, The Bride, per doz. bunches	2 0	3 0
— Blushing Bride, per doz. bunches	3 0	6 0
— Brenchlyensis, per dozen spikes	1 0	2 0
— various, dozen bunches	2 0	6 0
Gypsophila, per bunch	0 2	0 4
Iceland Poppies, p. doz. bunches	0 6	1 0
Lavender, per dz. bunches	3 0	4 0
Lilium album, per dozen blooms	1 0	1 6
— Harrisii, per bunch	1 0	2 6
— rubrum, per dozen blooms	1 0	1 6
Lily of the Valley, per dozen bunches	4 0	8 0
Marguerites, Yellow, per dozen bunches	0 6	1 0
Pelargoniums, Scarlet, dozen bunches	2 0	3 0
Phlox, per dozen bunches	4 0	6 0
Roses, Mermet, p. bunch	1 6	3 0
— red, p. dozen bunches	3 0	8 0
— various, doz. bunches	3 0	9 0
Smilax, per doz. trails	1 6	2 6
Sweet Peas, per dozen	0 9	1 6
Stocks, per dozen	3 0	4 0
Tuberoses, per doz. blooms	0 2	0 4

Plants in Pots, &c.—Average Wholesale Prices.

	s.d.	s.d.
Adiantums, per dozen	4 0	9 0
Arbor Vitæ, per dozen	6 0	36 0
Aspidistras, per dozen	18 0	36 0
Asters	3 0	4 0
Campanula, per dozen	3 0	6 0
Coleus, per dozen	3 0	4 0
Crotons, per doz.	18 0	30 0
Dracænas, var., per dozen	12 0	30 0
Euonymus, vars., per dozen	6 0	18 0
Ferns in variety, per dozen	4 0	30 0
Ficus elastica, per dozen	9 0	24 0
Fuchsias, per dozen	3 0	4 0
Heliotrope, doz.	3 0	4 0
Hydrangeas, per dozen	6 0	18 0
Ivy Pelargoniums, per dozen	3 0	4 0
Lobelias, per box	1 0	1 6
Lilium Harrisi, per dozen	4 0	8 0
— rubrum, doz.	6 0	9 0
— album, doz.	6 0	9 0
Marguerites, doz.	4 0	6 0
— Étoile d'Or, per dozen	4 0	10 0
Mignonette, p. doz.	3 0	4 0
Nasturtium, per dozen	2 0	4 0
Palms, various, each	1 0	20 0
Pelargoniums, scarlet	3 0	8 0
Pteris tremula, per dozen	4 0	8 0
— Wimsetti, per dozen	4 0	8 0
— major, p. doz.	4 0	8 0
Pyrethrum, double yellow, per doz.	2 0	4 0
Rhodanthe Manglesii, per doz.	2 0	3 0
Roses, various, per dozen	9 0	24 0
Verbenas	4 0	8 0

Fruit.—Average Wholesale Prices.

	s.d.	s.d.
Apples, per case	11 0	13 0
— English, sieve	3 0	3 6
— Quarrendens, per sieve	5 0	6 0
— Suffields, per sieve	3 0	—
Apricots, per doz.	1 0	2 0
Bananas, bunch	7 0	12 0
— loose, dozen	1 0	1 6
Currants, Black, sieve	8 0	8 6
— Red, sieve	4 0	5 0
Figs, per dozen	1 6	3 0
Gooseberries, per sieve or ½ bush.	3 0	4 0
Grapes, new Hamburgh, per lb.	2 0	—
— — B., per lb.	0 8	1 0
— Alicante, lb.	10	1 6
— Colmars, lb.	1 0	1 6
Grapes, Belgians, per lb.	0 5	0 9
— Muscats, A., per lb.	2 0	3 0
— — B., per lb.	0 9	1 3
Lemons, per case	15 0	25 0
Melons, foreign, each	1 6	2 0
— English, each	1 0	2 0
Nectarines, A., per dozen	9 0	12 0
— B., per dozen	2 6	5 0
Oranges, per case	10 0	12 0
Peaches, A., per dozen	12 0	18 0
— B., per dozen	2 0	4 0
Pines, each	3 0	6 0
Raspberries, per doz. punnets	3 0	4 0
— cwt.	28 0	30 0

Remarks.—Plums, per sieve, fetch from 3*s.* to 3*s* 6*d*.; and Green Gages, per sieve, 3*s.* 6*d.* to 5*s.* 6*d.* Apples, Grapes, and other fruits are much the same in price as last week, and trade is unsettled owing to events just passed. Vegetable-Marrows in bushel baskets fetch 1*s.* to 1*s.* 6*d.*; in pads or pots, 2*s.* Gooseberries and Currants are nearly over.

Potatos.

Various samples, 70*s.* to 110*s.* per ton. *John Bath, 32 & 34, Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

Glasgow, *August* 13.—The following are the averages of the prices during the past week:—Grapes, English, 10*d.* to 1*s.* 6*d.* per lb.; do., home, 8*d.* to 2*s.* do.; Strawberries, Scotch, 2*d.* to 6*d.* per lb.; Green Gages, 3*d.* to 6*d.* do.; Raspberries, 5*d.* to 6*d.* do.; do., Dutch, 18*s.* per cwt. (in casks); Black Currants, 6*d.* to 8*d.* per lb.; do., Dutch, 30*s.* per cwt.; do., red, 3*d.* to 4*d.* per lb.; do., Dutch, 16*s.* per cwt.; Melons, 7*s.* to 9*s* 6*d.* per case; Lemons, Naples, 14*s.* to 20*s.* per box; Tomatos, Scotch, 6*d.* to 9*d.* per lb.; do., English, 5*d.* to 6*d.* do.; do., Guernsey, 5*d.* to 6*d.* do.; Mushrooms, 1*s.* per lb.; Onions, Valencias, 5*s.* to 7*s.* per box; Beans, 2*s.* 6*d.* per bag; Carrots, 4*s.* and 5*s.* per hamper.

Liverpool, *August* 13.—*Wholesale Vegetable Market.*—Potatos, per cwt.: Early Regents, 2*s.* 6*d.* to 3*s.*; British Queen, 2*s.* 9*d.* to 3*s.* 3*d.*; Kidneys, 3*s.* to 4*s.*; Turnips, 6*d.* to 8*d.* per dozen bunches; Swedes, 2*s.* 3*d.* to 2*s.* 9*d.* per cwt.; Carrots, 6*d.* to 10*d.* per dozen bunches: Onions, foreign, 4*s.* 6*d.* to 5*s.* per cwt.; Parsley, 4*d.* doz bunches; Lettuces, 6*d.* to 8*d.* per dozen; Cucumbers, 1*s.* 3*d.* to 2*s.* 6*d.* do.; Cauliflowers, 2*s.* to 3*s.* do.; Cabbages, 8*d.* to 2*s.* do: Celery, 1*s.* 9*d.* to 2*s.* do.; Peas, 4*s.* 6*d.* to 5*s.* 6*d.* per hamper; Beans, 2*s.* to 2*s.* 6*d.* do.; do., Kidneys, 1*s.* 6*d.* to 1*s.* 10*d.* do.; do., Scarlet Runners, 2*s.* 6*d.* to 2*s.* 9*d.* do. *St. Johns:* Potatos, new, 1*d.* per lb.; Grapes, English, 1*s.* 6*d.* to 2*s.* do.; do., foreign, 4*d.* to 6*d.* do.; Pines, English, 5*s.* each; Apples, 3*d.* to 6*d.* per lb.; Pears, 6*d.* per dozen; Tomatos, 4*d.* to 6*d.* per lb.; Peas, 1*s.* 2*d.* per peck; Cucumbers, 3*d.* each; Mushrooms, 1*s.* 3*d.* per lb. *Birkenhead:* Potatos, 1*s.* to 1*s.* 2*d.* per peck; Peas, 1*s.* to 1*s.* 4*d.* do.; Cucumbers, 2*d.* to 4*d.* each; Currants, red, 4*d.* to 6*d.* per lb.; Gooseberries, 3*d.* do.; Grapes, English, 2*s.* 6*d.* do.; do., foreign, 4*d.* to 8*d.* do.

CORN.

Average Prices of British Corn (per imperial qr.), for the week ending August 9, 1902, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1901.	1902.	Difference.
	s. d.	s. d.	s. d.
Wheat	27 7	31 7	+ 4 0
Barley	22 1	24 11	+ 2 10
Oats	20 1	22 11	+ 2 10

ANSWERS TO CORRESPONDENTS.

*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

AMPELOPSIS VEITCHI (TRICUSPIDATA): *R. W. P.* The leaves vary in shape, the young ones being almost entire, the larger ones roundish cordate, divided in the middle into three cordate lobes. There is extreme variability in the foliage in this genus.

BASTARD-TRENCHING GRASS-LAND: *W. B. W.* A good spadesman furnished with a spade not much worn down, could be trusted to keep the grassy side downwards; but failing these essentials it will be better to skim off the turf two inches in thickness, and to place it in the bottoms of the trenches.

"BLINDNESS" IN BRASSICAS: *E. N.* Due to mechanical injury or malformation. No clubbing was observed in the plants sent, but merely a thickening of that part of the stem whence the inner leaves should have originated.

BOOKS: "GARDENERS' AND NURSERYMENS' ADDRESS BOOK": *A. Wulff.* You should purchase *The Horticultural Directory and Year-Book for* 1902, published at the office of the *Journal of Horticulture*, 12, Mitre Court Chambers, Fleet Street, London, E.C.—*C. Hounsell. Vines and Vine Culture*, by Archibald F. Barron, 3rd Edit. Published at the office of the *Journal of Horticulture*, 12, Mitre Court Chambers, Fleet Street, E.C. Price 5*s*., by post 5*s*. 6*d*.—*Carnation Culture*, By B. C. Ravenscroft. Published at 1*s*., by Upcott Gill, 170, Strand, W.C. *The Carnation Manual:* Cassell & Co.

CLEMATIS TO PLANT IN VINERY AND PEACH-HOUSE: *Omega.* Of species you might choose C. cœrulea, C. Balearica, C. Fortunei, C. lanuginosa, C. montana, C. viorna and its varieties. Of hybrid varieties there are many of great beauty, and single and double-flowered, of which we may mention a few: Countess of Lovelace, Devoniensis, Duchess of Edinburgh, Duke of Edinburgh, Fairy Queen, Jackmani, Lady Bovil, Lord Londesborough, Madame Van Houtte, Othello, &c.

CORRECTION. In our report of the Leicester Show, it was inadvertently stated that Mr. Amos Perry's establishment was at Tottenham, when in point of fact it is at Winchmore Hill, N.

DIANTHUS: *Jas. Grieve & Sons.* We regard the Dianthus as a seedling from D. Napoleon III., in which there is apparent an obviously intermediate reversion to the original parents of the male. It is certainly not in commerce, but we have seen others less free and effective in colour having similar characteristics. The mule pink character is plainly seen in the manner of its breaking from the base, and in other ways. We agree with your remark as to its fine bedding qualities. The variety should also prove a free seeder, and by these means create a useful and improved strain. A descriptive name would be D. hybridus, "crimson bedder."

GRAPES: *Cymro, and J. F.* The spot disease, so often described in our columns; consult some of the recent back numbers. Burn the affected Grapes and rods, and next season spray with liver-of-sulphur ½ oz. to 1 gallon of water, before the fruit sets.

MELON-ROOTS DISEASED: *B. & Sons. Not* eelworm. We will endeavour to investigate the matter further but our experts are holiday-keeping.

MELON LEAVES AND GRAPES DISEASED: *X. Y. Z.* There is no fungus on the Melon leaves. See Scientific Committee Report in our issue for June 7, p. 382. "Melon leaves decayed. Your Grapes are shanked."

NAMES: *C. P.* Celsius and Desfontaines.

NAMES OF FRUITS: *E. W.* The green Grapes are attacked by the spot-fungus. See recent issues of this journal for remedies and precautionary measures. The black Grape is unripe, and resembles Gros Maroc. The Fig is Nigrette, a delicious variety.

NAMES OF PLANTS: *R. L.* The plant is Erica stricta, Andr. (E. ramulosa, Vir. non Bartl.).—*H. C., Geneva.* Chironia floribunda, Paxton.—*G. H. C.* Tecoma jasminoides, often called Bignonia.—*Rob.* Francoa sonchifolia.—*Vincent.* 1, Oncidium obryzatum; 2, Miltonia spectabilis; 3, Miltonia vexillaria of the small-flowered type known as rubella; 4, Cypripedium exul; 5, Odontoglossum Wallisii, the unspotted lipped variety named O. purum. Both spotted and unspotted labellums often appear on the same spike in this form.—*E. H., Doncaster.* Lysimachia vulgaris.—*A. B. C.* 1, Nephrolepis exaltata; 2, Nephrolepis davallioides. Both are good basket plants.—*G. B.* 1, Dipsacus sylvestris (Teazle); 2, Achillea ptarmica flore-pleno; 3, Bocconia cordata.—*The Bothy.* 1, Cassia corymbosa; 2, Strobilanthes Dyerianus; 3, Nicotiana tabacum macrophyllum. (Broad-leaved tobacco.)—*David Ross.* Osmunda regalis.—*A. C.* sends such miserable scraps and quite withered when we received them, that we cannot pretend to name them. Our time and space are very precious.—*H. K.* The flowers are withered, but they seem to be those of Trifolium repens.—*R. P.* 1, Astrantia major; 2, Deutzia crenata flore-pleno; 3, Hypericum calycinum.—*W. T.* Genista tinctoria, a common weed in some places.—*Coronation.* 1, Asclepias curassavica; 2, a Casuarina; 3, Sanseviera zeylanica.—*E. C.* 1, Cornus variegated var.; 2, Cornus mas variegata; 3, Spiræa Lindleyana; 4, Viburnum Opulus; 5, Cupressus nootkatensis variegated.

NURSERY MANAGEMENT: *W. E. R.* We know of no book that affords the special information required. A study of the best works on gardening, combined with practice in trade establishments, especially the latter, are the only right methods to pursue.

OAK-LEAVES: *Constant Reader, Geneva.* The leaves have been punctured by an insect, probably a gall-fly. The spots appear to be the early stages of the Oak-spangles. Please send specimens later on.

PEACHES: *Byfleet.* Small fruits, nicely coloured for so bad a season; flavour left much to be desired.—*E. Lazenby.* The fruits arrived in a smashed, rotten condition, so that we are unable to do anything with them. Could you send others not so far advanced in decay, and more securely packed?—*A. K.* Quite rotten when received, probably Raemaker's.

PEAR: *M. N.* The leaves are affected with the common Pear-mite. Sweep up the affected leaves and burn them, and next year try the effect of spraying with some insecticide.

"PFLANZENREICH": *E. S.* This is in course of publication at irregular intervals. It can be procured from Messrs. Williams & Norgate, Henrietta Street, Covent Garden. The genera and species of each order (so far as published) are described, and the native countries indicated. The work could be seen at any of the libraries you mention. Only a few parts are at present published.

ROSE LEAVES DISFIGURED: *H. Fife.* The Rose-rust. Apply flowers-of-sulphur, Bordeaux Mixture, or other fungicide, and do this also next summer early in the summer, and several times during June and July.

TOMATOS MALFORMED: *Subscriber.* Interesting, but of common occurrence; the result of a union of clusters of blossoms.

TOMATO: *E. Constant.* Your Tomato is affected with the black spot. You are not a very diligent reader, or you would know that it has been figured and described repeatedly. Burn the affected fruits, and spray the plants with liver-of-sulphur, ½ oz. to 1 gallon of water. The grass is Poa trivialis variegated variety; 1, is a Pelargonium we cannot name; 2, Saxifraga hypnoides; 3, is Agrostemma coronaria.

TRANSPLANTING HARDY HERBACEOUS PERENNIAL PLANTS: *Omega.* Any of those which have flowered during the current year may be lifted—in the case of bulbs in June, July, and August, and stored; whilst other plants may be lifted, and if necessary divided in the present month and September. By not exposing the roots to the sun more than can be helped, carefully planting in trenched or deeply dug, well prepared land, affording water occasionally in the absence of sufficient rain, and shading with a few branches of evergreens, the plants will obtain good root hold before the winter, and will flower well next year. Late flowering plants, unless you are prepared to sacrifice this season's flowers, should be lifted in February, March and early April. It is not yet too late to move and replant directly the bulbs of Lilium candidum.

VINE-LEAVES DISFIGURED: *J. MacLean.* The leaves sent have been scalded by strong sunshine whilst moist, at a time when the ventilation of the vinery was insufficient in amount. This mishap often occurs in the summer months from 8 to 10 A.M. Air should be afforded from 7 A.M. onwards. The leaves show the small warts that always indicate a want of balance between the moisture in the air and the ventilation; but these are dead.

VINE-LEAVES DISCOLOURED: *F. H.* The larger specimens have been scalded owing to insufficient ventilation, or because they were in contact with the glass. These are of good substance and healthy. Some of the smaller leaves seemed to be attacked by mildew, or that mysterious fungus which is the cause of browning; but it is in a very early stage, and not recognisable. Keep a close watch on the foliage, and for safety's sake use the usual formulas—liver-of-sulphur, at the rate of half an ounce in a gallon of water, or the Bordeaux Mixture.

WOODLICE IN A BED OF SEDUMS: *Dun.* Enormous numbers of the creatures may be caught at night in small flower-pots stuffed full of damp, i.e., half-decayed hay, and in lengths of Bean-stalks, these being put round about the bed and among the plants of an evening, and removed and emptied in the early morning hours. By following up this method for a week or two, the pests will be much reduced in number.

COMMUNICATIONS RECEIVED.—W. M.—S.—E. G.—D. B.—F. O.—H. W., next week—Doubtful, next week—H. C. P.—G. M.—A. Henry—J. G. V.—R. C.—A. K.—L. M.—A. W., Japan—A. H.—J. F. H.—J. G. Weston—Trevince—H. C. E.—W. T.—A. J A. B.—Dr. Henry.—American Florist Co.—H. H.—H. N. S.—C. E. P.—John C. B.—J. T.—A. P. B.—A. B. MacDowall.—B. & S.—H. Gillett.—A. D.—H. M.—W. S.—A. R.—J. J.—E. H. J.—O. Thomas.—J. W.—C. B.—T. Ryan.—H. Cannell & Sons.

GARDENING APPOINTMENTS.

MR. W. H. BAILEY as Head Gardener to B. ELLIS, Esq., Bevendean, Oxshot, Surrey. Mr. BAILEY was for some years Head Gardener to Sir JOHN WHITTAKER ELLIS, Bart., Buccleuch House, Richmond.

Mr. A. R. JOLLEY, Foreman in the Gardens at Bewerley Hall, Pateley Bridge, Yorkshire, as Gardener to J. W. LOWE, Esq., The Ridge, Chapel-en-le-Frith, Derbyshire.

Mr. G. H. AVERY, Foreman in charge of the Gardens, Battle Abbey, as Head Gardener to M. P. GRACE, Esq., at the same place.

Mr. WALLACE BATH, late Gardener at Crownlands, Barton-under-Needwood, Burton-on-Trent, Staffordshire, as Head Gardener to Baron DE TEISSIER, Denton Court, Canterbury, Kent.

Mr. JOHN HILL, Head Gardener at Wemyss Castle Gardens, Fifeshire, N.B., has been appointed in the same capacity, at Lainshaw, Stewarton, Ayrshire, the residence of A. ARTHUR, Esq.

Mr. W. J. SKINNER, until lately Gardener at Sneyd Park, Clifton, as Gardener to W. S. HODGKINSON, Esq., Glencot, Wells, Somerset.

THE

Gardeners' Chronicle

No. 817.—*SATURDAY, AUG.* 23, 1902.

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Italian garden, Westonbirt, Tetbury (Supplement)

A HIMALAYAN GARDEN.

WE came here sometime ago, jolting up from Kalka, a little station lying fifty odd miles below, at the foot of the hills. What a contrast! The over-tilled Indian plains are dust-smothered, thirsting for rain, giving back heat for heat to the stupefying sunlight; but here it is so fresh—cold almost—with a breeze bearing straight across from a magnificent line of eternal snow.

It is a great joy to me to work in my garden, a little patch reclaimed with difficulty from steep slopes. Far below, the tops of tall Pines show like soft moss; high above, they tilt against the sky, and from my small home, clinging to the hillside, I look away and away over the wide valley to mountain ranges that roll northward, rising steadily in ever-increasing rugged beauty towards the snows. It is a very wild little plot, with its thick bushes of Fuchsia, the tangle of high Walnut and Apricot-trees, and the red Cherries, amongst which the monkeys make such havoc. The trellis of the front verandah is thick with Passion-flowers, and beyond a path, so narrow as barely to allow room for a rickshaw to turn, there is a border of gay annuals, held in alone, it would seem, by a rustic fence set at the very brink of the cliff. The flowers peep through here and there, to avoid the shade of the transverse pieces of wood, and from the road winding to the servants' huts below this patch, with its splashes of colour, has the effect of a hanging basket between the trees.

The garden is divided into ridges, and on the uppermost of these there is a wide bank of yellow Chrysanthemums, which grow so thickly that, though I cut an armful of them every day for use in the house, there are no visible gaps. Just where they flourish, it is a golden kingdom, for above and below there are yellow Dahlias and Sunflowers, the latter very large, and bending over in many cases with the weight of their brilliantly petalled heads. Wherever flowers are planted they show up brightly against the dark green Pines, and here and there, growing as they perforce must at the edge of what we call the *khud* in India, it often happens that between a clump of blossoms and a line of far away hill, there is nothing but miles of limitless space. I know not why, but it has a curiously exhilarating effect, that lack of middle distance. At least here one could never feel cramped, for the spirit and imagination are free to follow the eye until it tires, right away into those faint mists which, lying beyond the last line of things visible, seem to merge into heaven itself.

My garden has for me, of course, that added sense of completeness, which arises from association. Year after year we come to this spot, and the place where so much has grown with my moods seems to have become curiously conscious, and alive with feeling both for the moments of bliss with which it is irrevocably bound, and with what I have suffered. No one can tell what that wide view which my garden commands has been to me. That the great spaces of Nature are suited to the great emotions is surely true. Supreme happiness brings with it the need of expansion, of ventilating the wonder within; so that in letting the eye range far, the heart also may conceive and be filled with a consciousness of the illimitable, for to lose sight of all that is near and transient in the contemplation of that which is vast, immeasurable, immutable, is to feel the greater glories of Nature, to be in sympathy with the eternal springs of our own joy. And when sorrow crushes, then also it is well that our horizon should be wide, that from the great spaces of Nature, we may learn our own complete insignificance.

Where there is a break in the Pines, there come some twisted Rhododendron trees forming new shades of green which glisten freshly every time they are washed by the rain. It is in the "rain" season, indeed, when most people are out of humour with the weather, that I love my garden best. The flowers are so grateful at first, then they droop beneath the force of the sudden storms, only to smile through the tears with which their little faces are bespattered, when the sunshine touches them again. That is during the first week when there are bright intervals, and wonderful passing shadows from the masses of cloud; but later the rain falls wildly day and night, lashing amongst the Pine branches, turning each sodden stem to a rough red. The mists skirl and cling round the sharp peaks like drifts of white smoke dragged from the steaming earth. Here they are rent and torn by the wind, there they completely shut out the valley and all below, and saturating the clusters of Pine needles, leave them so full of crystal drops that presently each little twig will twinkle with a thousand diamond lights.

And all the while beneath these streams of vapour there is growing up a perfect wonderland of natural growth. At sunset, when the sky clears for a short time, the veils of golden haze roll back and upwards until they catch a thousand other tints, and beneath, every wet slope is starred with flowers, carpeted with Fern, and moss, and Maidenhair, while through it all sounds the pattering rush of moving water, seeking its level far below.

There is only one season when I do not know my garden, and that is in the winter, when we are living on the plains, and it is left silent and untrodden beneath a deep mantle of snow. *K. M. E.*

NEW OR NOTEWORTHY PLANTS.

PRIMULA VIOLODORA, Dunn (sp. n.).*

Another new Primrose, discovered by Mr. Wilson in Central China, has recently been presented to Kew by Messrs. Veitch. It is allied to the Himalayan Primula mollis, but can readily be distinguished by the colour and shape of its calyx. The flowers are mauve, and, especially in the evening, have a delicate scent, resembling that of violets. Like its ally, P. mollis, which owes its presence in cultivation solely to the seeds collected by Booth in Bootan about the middle of last century, it is probably rare as a wild plant, and was not met with by Dr. Henry in his extensive exploration of the flora of Hupeh. *S. T. Dunn.*

LILIES OF JAPAN.

I have been favoured with a reading of some back numbers of the *Gardeners' Chronicle* of 1901, and am much interested in a series of articles written by Mr. G. B. Mallett on Lilies. With your permission, as one of the earliest of modern Lily growers, I should like to make a few remarks on Mr. Mallett's articles, which might interest your readers. In the *Gardeners' Chronicle* of July 13, 1901, p. 24, Mr. Mallett writes as if the European, and perhaps he intends Japanese, growers have wonderfully improved the varieties of L. speciosum. To quote from the article, he says: "The garden forms of L. speciosum are a great advance on the old types imported from Japan twenty years ago." This is quite incorrect. He names for examples L. speciosum album novum (correct name L. speciosum punctatum album), L. speciosum Krætzeri (correct name L. speciosum roseum album), and L. speciosum Melpomene. The two first I knew further back than twenty years ago; L. s. Melpomene is a name given by the late Mr. Hovey, nurseryman, Boston, Mass., U.S.A. On Mr. Hovey's last visit to London, he informed his friends in England that he had raised a new Lily from

* *Primula violodora*, Dunn (sp. n.).—A P. molli, Nutt., calyce viridi, subglabro, basi angustata distincta. Herba pubescens, efarinosa, rhizomate brevi. Folia orbicularia vel reniformia, convexa, sæpe bullata, cordata lobis sæpius obtegentibus, 1½—2 poll. diam. bicrenata, siccitate membranacea, utrinque sparse pubescentia, venis pinnatis infra prominentibus, petiolis laminas excedentibus, pilis violaceis crebre vestitis. Scapus erectus, 5—10-pollicaris, simul petiolis præcipue inferius vestitus, verticillos 2—3 (rarius 1) gerens. Pedicelli in verticillo quoque 3—5, ½—1½ poll. longi, bracteis subulatis vel rarius subfoliaceis, 1½—8-plo longiores, ascendentes. Flores violarum odorem emittentes. Calyx subglaber, viridis, ex basi angusta divergens, 4—5 lin. longus, dentibus 5, tubum paullo excedentibus, lineari-lanceolatis acutis, trinerviis, sparse puberulis. Corolla roseo-lilacina, tubo cylindrico, calycem paullo excedente, ore luteo pentagono, limbo 8—10 lin. diam., lobis patentibus, obcordatis. Capsula non visa.

Hab. in clivis montium, Hupeh, China. Wilson, No. 923.

L. speciosum and L. auratum, and promised on his return to send some of the bulbs to London. In due course they arrived, and at Stevens' sale room fetched good prices. When flowered, these proved to be simply a good variety of L. s. rubrum, and there were plenty of the same in Japan. Had Mr. Mallett said that before Japan sent to us L. speciosum there was hardly a really good variety of this species in Europe, he would have been right. The Dutch had been raising them from seed, and a wretched lot flooded the market. Money could not buy the fine type figured in the *Botanical Magazine*. As soon however as we had L. speciosum direct from Japan, which included the above-named varieties, we could realise the glowing description to be found in the old edition of Loudon's *Cyclopædia of Plants*.

The Japanese have L. speciosum roseum album and L. speciosum punctatum mixed. When in Japan I drew attention to the difference between the two: one with chocolate coloured anthers, and the other with primrose coloured anthers, and any one purchasing a few bulbs of the former may find some of the latter amongst them. I have no doubt we shall soon find the Japanese separating the two; meantime this is done in Europe.

L. tigrinum Fortunei and L. tigrinum splendens are both Japanese Lilies, but the Japanese have not yet begin to distinguish them. I found one firm selling the woolly-stemmed one under the name of L. t. splendens, and explained the difference of the two; this year the firm have dropped the name, and simply offer L. tigrinum. I examined many wild L. tigrinums, but found none to be either tigrinum Fortunei or splendens; so I take it the woolly-stemmed var., L. tigrinum Fortunei, is cultivated as an article of diet, and Mr. Fortune must have come upon one of these patches when in Japan. L. tigrinum splendens, Mr. Leichtlin found this one amongst a lot of imported Japanese Lilies, secured the bulb, and grew on a stock, and handed the same to his old friend, Mr. Louis van Houtte. Both varieties are only at present to be had true from bulbs raised in Europe. I have often bought at the Auction Mart large Lily-bulbs without name, and generally they turned out to be L. tigrinum Fortunei; but on no occasion did I ever find L. tigrinum splendens. I take it, therefore, it was a chance bulb, and if we ever get it true from Japan, the Japanese will have to start with a European stock. Mr. Mallett claims for these two fine varieties a richer colour than the flowers of the old form of Lilium tigrinum; but this is not so, which may be proven—with bulbs of equal size, and the same culture, they will be found much the same as regards colour and size of flower, and I shall be mistaken if not of equal height. The larger Japanese bulbs give a taller and robuster plant the first year than they do the succeeding years, as the bulbs are then smaller. When Mr. Standish first flowered L. tigrinum Fortunei he invited me to see it, and I asked him what he claimed for it in addition to the woolly stem. He replied, the flowers are larger, and the colour richer. In the afternoon we had a drive amongst the gardens at Ascot, and in one of them there chanced to be some of the old L. tigrinum, and we took back a flower and made comparison, and Mr. Standish admitted there was no difference in size of flower or in colour.

I take exception to Mr. Mallett's statement, that the largest-sized bulbs of L. auratum sent to England have attained their full size, and in consequence die sooner than medium-sized bulbs. If the soil and conditions are right, and the bulbs planted deep enough for the stem-roots to play their part, the size will make no difference as to the length of the time the plant will live. This depends on the power of the bulb remaking itself, and the size of bulb depends on feeding, not necessarily artificial feeding, but the food naturally in the soil. I had considerable experience at my old grounds at Tooting, where I got but one year out of my bulbs of L. auratum, 80 per cent. of the bulbs I planted perished after flowering, and the 20 per cent. were not good enough to sell. On the other hand, the late Mr. McIntosh, of Walton-on-Thames, lost very few bulbs, and they increased with him, not from any special treatment he gave them. They were planted on the margins of his Rhododendron-beds; the soil was so sandy that his drains got silted up, and had frequently to be cleaned out. To keep his Rhododendrons in health, he had during summer to water often and freely; this treatment suited the L. auratums, as they had plenty of moisture and good drainage the year round, hence his success. Mr. Tyerman, when living in Cornwall, after retiring from the Liverpool Botanic Gardens, had great success for a time with L. auratum, and gave the bulbs away in basketfuls, but failed to re-establish them again from some cause or other; I had a basketful of them, and the bulbs were really fine. The L. auratums are collected from the hills in Japan, sized, and planted; the largest are ready to sell in one year, and the smaller require two and three years' growth before being marketable.

I notice in the *Gardeners' Chronicle*, Aug. 24, 1901, p. 146, that Mr. Mallett makes a difference between L. longiflorum Takesima, and L. longiflorum giganteum, but there is really none. "Takesima" is the older name, but it was the new name "giganteum" that boomed the plant, and its lower price gave it a popularity it never enjoyed under the name "Takesima." Mr. Mallett's description of Takesima answers to the plant grown in Europe. "Giganteum" from Japanese bulbs gives a stronger, and more floriferous plant the first year, as it is seldom we are able in Europe to get strength into the bulbs of any of the L. longiflorum varieties. When Bermuda failed to meet the increasing demand for L. Harrisii (L. longiflorum eximium), a call was made on Japan, and collectors were at once despatched to the Southern Islands, who collected all and sundry, with the result that eight varieties were got together, some with large flowers, some with small flowers, some were dwarf in growth, others tall, some with broad foliage, others with narrow leaves, while others had split flowers. Complaints being made about the want of uniformity, and as the varieties were known by the bulbs, selections went on annually, and if one is to judge from the photograph in the *Gardeners' Chronicle* of August 24, 1901, p. 174, the stock in the hands of the leading shippers must now be pretty uniform. That photo shows the variety with the narrow foliage, the longest flowers, and the most floriferous, so it can now be had. This variety according to the strength of bulb is capable of giving from five to twenty blossoms on a plant.

L. Batemanæ is an old Lily with a new name, having been early sent to Europe, most likely by Dr. Siebold, and was long sold under the name L. venustum, and must under this name have been known to Dr. Wallace, who gave it the name Batemanæ, in compliment to Mrs. Bateman, a keen Lily amateur. The Japanese bulbs no doubt gave a stronger plant and more flowers, and the Doctor must have considered it superior to L. venustum. Whether or not, the new name took on, and the Lily, a very fine late-flowering variety, sold well. This is the favourite Lily bulb in Japan for eating, the broader and stouter scale, and better taste, commend it in preference to any other Lily bulb, and gives it a commanding position in the vegetable markets of Japan.

Before closing, I may as well supply a few Japanese notes, that some of your readers may feel an interest in reading. In the early days the hills around Yokohama were covered with Lilium auratum. At the present time there are too few to be worth collecting to cultivate for the over-sea markets, and collectors have to go further a-field, more inland. This Lily is considered to be confined to the eastern, northern, and western parts of the mainland of Japan, and so far as is known does not extend to China. L. auratum platyphyllum was found on a small island off the coast of Idzu. The varieties of L. auratum, such as pictum, Wittei, rubro-vittatum, and virginale, are simply selections found amongst the type. The origin of L. Batemanæ is not known, as it has long been cultivated as a vegetable.

Lilium longiflorum varieties are found on all the southern islands, but not on the mainland of Japan. Collectors have seen the species, but only in small quantities in Formosa, and as no bulbs of it have been collected in Formosa it is not known whether it differs in any way from those on the southern islands of Japan. It may be wild in China, as it is grown in the gardens of this country, but the variety seen was only the most inferior of the Japanese type. Lilium medeoloides is found at Nikko and Fuji, and most likely in Northern China. The Japanese vars. differ a little; the one growing at Nikko, the petals are spotted purple; the one growing at Fuji the petals are without spots.

Lilium speciosum, as a wild plant, is found on the mainland, and on the small islands off the southern coast of Japan, but not abundantly.

Lilium odorum comes from the north-west of Japan, where it is cultivated for eating. The habitat of L. Hansoni and L. Leichtlini are both unknown at present.

The following come from gardens:—L. auratum platyphyllum and rubro-vittatum; the varieties of elegans, Alice Wilson, variegata, semi-plena, flore-plena, atrosanguinea, Peter Barr, L. Leichtlini, L. longiflorum fol. albo variegatis, L. Hansoni, with many other varieties of L. elegans.

Lilium davuricum I found on the northern island, growing in wet sand, and rather deep, so that I had some difficulty in getting a bulb up to look at. The few remains of the original inhabitants of Japan live on the Northern Island. The men have a somewhat sulky look, but the women are generally good-looking, with a sunny smile. The men never seem to smile. *Peter Barr, V.M.H., Cape Town.*

TREES AND SHRUBS.

NOTABLE TREES AT ERLESTOKE PARK.

ERLESTOKE is the residence of Simon Watson-Taylor, Esq., and the estate is one of the most heavily timbered we have seen in Wiltshire. It stands high, and a grand view is obtained over the thousands of acres which surround the house. The private grounds are very extensive and varied, and tree and shrub growth are remarkable for vigour and beauty, so that I could not fail to be struck with the fine proportions of some of the many of the choicer species. Of Tulip-trees there are several, but one stately specimen whose roots have access to the waters of the lake is of great height, breadth, and vigour, and myriads of flowers were observed on it this year, many of which remained till the end of July. Ailan-

thus glandulosa is another tree remarkable for its fine proportions and distinct foliage. The Judas-tree, Cercis siliquastrum, was glorious in its wealth and depth of colour, and the specimen was a large one. Of Oaks, both deciduous and evergreen, there are a great many fine specimens, one near the house having a wonderful breadth, the branches sweeping the lawn. Scotch and Silver Firs rise to heights varying, it is estimated, from 80 to 100 feet, the boles being as straight as trees can grow. Copper and green-leaved Beech, Lime, Larch, Elm, and Sycamore, are each represented by finely developed trees. On the banks of one of the several lakes, plants of Clematis Vitalba have reached to the top of a tall Beech-tree, and forms a most striking picture at all seasons. Sequoias, Cryptomerias, Cedars, deciduous Cypress and Araucarias abound; as also an Oak planted by the late Queen Victoria when on a visit to Mr. and Lady Watson-Taylor early in the eighties. *W. S.*

VEGETABLES.

SOME GOOD CULINARY PEAS.

Peas have done well this season generally, and still promise good crops. At Erlestoke Park abundant supplies have been obtained from the varieties Daisy and Early Morn, both of which varieties are much above average merit in constitution, earliness, cropping, and flavour, and I may venture to assert that they are not to be excelled. Both varieties were raised by Messrs. J. Carter & Co., High Holborn, London. I was enabled to gather pods this season from both varieties in three months from the date of sowing the seeds out-of-doors. Daisy is being much sought after by market gardeners, even in remote parts of the country, it being a variety that does well in fields and allotments; and it has an advantage in needing no stakes.

Model, Telephone, Danby's Stratagem, and Telegraph are models of what a high-class Pea should be, viz., good croppers, and having large pods containing large seeds of a good colour and fine flavour. Besides the above-named varieties, is Carter's Anticipation, a variety which only grows 2½ feet, and which is tip-top in size of pod and in flavour. G. F. Wilson is another excellent variety, 3 ft. high, of good flavour, and very prolific, and a Pea that generally does well upon any soil. [But the pods come in all at once. Ed.]

Autocrat is looking extremely well, and is one of the very best late varieties. Carter's Michaelmas is a promising variety, which is likely to assert its superiority as being the best late variety. Where ground can be spared, this variety should be sown at three different times, in order to lengthen out the supply of pods till frost comes.

Late Peas require well-tilled soil, and it is better to sow the seeds in trenches or shallow depressions, that may be the more readily afforded water if necessary. For the latest crops very early varieties are best, such as Lightning and Chelsea Gem. If mildew should appear on late Peas, flowers-of-sulphur mixed with milk, will check the ravages of mildew, or it may applied as a preventative. It is advisable to plant late or early varieties to come into use late in the year on ground exposed to the afternoon sun, as during September the sun's rays are very powerful in the middle of the day. If mulches are employed for all of these late croppers, the soil is kept moist without the use of much water. *W. A. Cook, Erlestoke Park, Wilts.*

THE FOUR SPECIES OF RODGERSIA.

At present in the rock garden at Kew there is in flower, for the first time in Europe, a new species of Rodgersia. This plant has been raised from seeds, which were sent by me from Yunnan, where I found it in the fruiting condition on cliffs about 8,000 feet above sea-level in the great mountain range north of Mengtse. This beautiful plant is Rodgersia pinnata of Franchet, and was described from specimens gathered by Père Delavay in shady places in the mountains to the north of Tali in the province of Yunnan. It is perfectly hardy, and should be grown under precisely the same conditions as are applicable to Rodgersia podophylla. The herbarium specimens at Kew include my No. 11,164 in fruit, and flowering specimens from Delavay.

This plant is remarkable for its peculiar leaves, which are best described as quasi-digitate. As is well known, the type of leaf in Rodgersia is digitate, and the other three species of the genus do not depart from the type, except that the uppermost leaves may be simple or ternate. In this Yunnan species the decomposition has been carried further, and the leaves become pinnate in a peculiar fashion, just as if the digitate leaf were drawn out, by hauling on the basal and terminal leaflets. In the largest leaves, on the lower

Fig. 44.—Rodgersia pinnata.

(Photographed for the "Gardeners' Chronicle" at Kew by J. Gregory.)

part of the plant, we find below three leaflets close together, so as to be ternate, intermediate either one or two pairs of opposite leaflets, and above, three leaflets, the uppermost one only being distinctly petiolulate. When six leaflets only occur, there are three below and three above, ternate in attachment. On the upper part of the stem the leaves vary, being simple, ternate, and digitately five-foliolate.

Rodgersia pinnata (see fig. 44) has reddish flowers disposed in a somewhat narrow, cymose panicle. It attains a height of about 3 feet or more. The flowers are fragrant, with an Angelica-like odour.

There are now three species of Rodgersia in cultivation in England: the well known R. podophylla of Japan, R. pinnata at Kew, and R. æsculifolia, a species of Central China, which was sent home by Mr. E. H. Wilson, Messrs. Veitch's zealous collector. The last-named is a very handsome species, and is equally hardy.

Some account of the genus may therefore be acceptable. Four species are known, of which three are Chinese, and one is from Japan. R. Henrici is not yet introduced. Rodgersia is very close to Astilbe in botanical characters, though easily distinguished by its habit. The distinctions between the two genera are as follows:—

Rodgersia: Leaves digitate or quasi-digitate; inflorescence a cymose panicle; bracteoles absent; petals absent.

Astilbe: Leaves biternate, rarely simple; inflorescence a spicate or racemose panicle; bracteoles present; petals present or absent.

1. *Rodgersia podophylla*, A. Gray.*—Occurs wild in Japan. Introduced into cultivation at St. Petersburg by Maximowicz in 1871, and into England by Messrs. Veitch in 1882 from seeds collected by Maries. Figured in *Bot. Mag.*, t. 6691. Another figure is given in *Garten Flora*, 1871, p. 355, t. 708. It is an excellent rock plant, and is tolerably well known. It is said to occur wild in open subalpine mossy woods in North Japan, and on Fusiyama.

The lower leaves are digitate, leaflets five or seven, obcuneate, trilobed at the apex, the lobes being often deeply incised. The leaflets are doubly dentate all round. The upper leaves on the stem are ternate. The plant is glabrous, except a fine pubescence on the inflorescence, which is a large panicle. The calyx has five or six whitish sepals, half as long as the stamens, which are ten or twelve. The sepals are narrowly ovate, and very acute.

2. *Rodgersia æsculifolia*, Batalin, *Acta Hort. Petrop.*, xii., 96. Diels, *Flora von Central China*, p. 364; *Rev. Horticole*, 1897, p. 194.—This is the plant referred to in *Index Flor. Sinens.*, i., p. 266, as R. podophylla, var.? foliolis apice rotundatis, nec trilobatis. It is also R. podophylla, Franchet, *Pl. Davidianæ*, ii. 46.

It was first discovered by David in Mupin in 1869, and specimens have since been collected in Hupeh and Szechwan by myself (Nos. 849, 860, 4001, 5711, 8972); by Potanin in Kansu and Szechwan; Faber on Mount Omei (No. 49), Pratt at Tachienlu (Nos. 277, 339), Von Rosthorn in Szechwan, and Giraldi in Shensi. It is a plant of the mountains of central China, occurring in shady places, numerous plants growing together. The plant is referred to in the *Chinese Herbal* as Kuei Teng Ch'ing, i.e., Devil's Lamp-stand, but it is known colloquially in Hupeh as Lao She P'an, i.e., Old Serpent's Dish. The rhizome is used as a drug.

Rodgersia æsculifolia is a large plant, attaining 6 feet in height, with leaves larger than in the last species. The plant varies in pubescence; the leaves beneath on the veins are often covered with a short white pubescence, but they are often glabrous. The inflorescence is always pubescent. The leaves above are either single or 3-foliolate; below they are 7-foliolate, the leaves being digitate. The leaflets are obovate-cuneate or obovate-lanceolate, acuminate, rounded or acute at the apex. The flowers are in large panicles, whitish and fragrant. The sepals are semi-orbicular, never acute. The stamens are one and a half times the length of the calyx. There is a variety in the wild state in which the sepals are green.

3. *Rodgersia Henrici*, Franchet, *Rev. Horticole*, 1897, p. 194.—This is Astilbe Henrici, Franchet, in Prince Henri d'Orleans' *Du Tonkin Aux Indes*, p. 378.—Not yet introduced. From the description it closely resembles the last species, but the leaflets terminate in long points. The flowers are of a deep purple, with oval-rounded calyx lobes, larger than in the other species, and they are arranged in pyramidal panicles. The stamens are slightly projecting.

This species was discovered by Prince Henri d'Orleans in the mountains between the Salwen and Mekong, to the north-west of Tali, in Yunnan.

4. *Rodgersia pinnata*, Franchet, *Pl. Davidianæ*, ii., 214, described as Astilbe pinnata, Franchet, in *Pl. Delavayanæ*, p. 232.—This plant occurs in the mountains near Tali and Mengtse, in Yunnan; and Ducloux (837) found it near Yunnan-fu. There is another specimen of Ducloux (490) in the herbarium at Kew, which has very pubescent leaves, but the flowers are similar to those of 837, and it is probably this species.

This plant differs from the other species in the remarkable disposition of the leaflets, which are pinnate, as mentioned above. The stem has yellow, silky hairs at the insertion of the leaves, and at its base. The leaflets are almost glabrous, except on the midribs; they are obovate-lanceolate, rounded or acute at the apex, and serrate. The panicle is narrow, and has a salmon-pink tinge. The sepals are almost white, ovate-lanceolate, acute, and patent. The stamens are exserted. The accompanying illustration (fig. 44) was taken by Mr. Gregory from a plant growing on the rockery at Kew. *Augustine Henry.*

* Hemsley, in *Index Fl. Sinensis*, i., p. 268, refers to R. podophylla, a plant gathered by J. Wilson on the Chekiang hills, and cultivated in Shanghai; and a specimen is said to be in the Kew herbarium. I have been unable to find this specimen, and the occurrence of this species in China must, I think, be considered doubtful.

FLOWER GARDENING AT THE ZOOLOGICAL GARDENS.

Those who have not visited the Zoological Society's Gardens, at Regent's Park, may not know that they have attractions for the gardener as well as for the zoologist. Yet the flower gardening there is scarcely less remarkable than the unique collection of animals. The Society's exhibition may not be likened in the least to an ordinary wild beast show, in which the animals are huddled together in small dens and cages in a stifling building or tent! At Regent's Park the dens are large, roomy, and so situated, that well kept lawns and flower-beds surround most of them; and it is the policy of those charged with the management of the gardens and exhibition, to make the flower-gardening as attractive and choice as possible.

Upon passing through the gates at the main entrance, the visitor passes along a path having flower-border, on either side for a distance of about 350 feet. These are planted with a great variety of flowering and ornamental foliage plants, including the golden-leaved Privet. There is not so much studied arrangement here as in other portions of the grounds, but the borders are exceedingly bright, and appropriate for the position they occupy. To the left of the main entrance is an illustration of brightening a shrubbery border that deserves the attention of amateur and professional gardeners alike. The shrubbery is banked up above the path, and is faced with large plants of variegated Privet, the border of flowering plants being below. There are groups of Balsams, that, notwithstanding the indifferent season, have grown and bloomed freely; Chlorophytum elatum variegatum is planted between them. A group of orange-coloured Celosias is particularly effective. In front of these and other similar plants are Alternantheras, Iresine, Cineraria maritima aurea, Zebrina pendula tricolor, &c. One cannot help thinking how many gardens might be made more pleasing if the shrubbery borders, often so untidy looking, were treated in the same or similar manner.

It is in front of the monkey-house, however, that the most ornate beds are situated. They are a series of diamond-shaped beds, with grass between each. There are three groups upon three squares of grass. The beds in either of the end squares are planted exactly similarly. In each of the squares the centre bed contains a large vase, the one in the centre square being largest.

Having thus occasion to mention the vases, it may be said here that vases are a feature of the gardens, for which Mr. Young is entitled to high praise. They are not filled with a huge plant of scarlet flowered Pelargonium or other species, but like the flower-beds themselves, are furnished with mixed flowering and foliage plants. A groundwork is made with suitable plants, and at every angle Ivy-leaved Pelargoniums, and many other species, are neatly staked out to a distance proportionate with the size of the vase. Before these are trailing plants that fall towards the beds below, and the appearance of the vase, when finished, is similar to that of a well-made shower bouquet. The effect obtained depends upon the choice of the plants to be used, and on the planting of them.

To revert to the beds, as much pains are taken in selecting the various subjects for these as would be possible in the case of decorating a dinner-table. The mixture of plants is always harmonious, none outgrow the other, and the effect is as neat and harmonious as in a skilfully-painted picture. In some beds a Fuchsia was the centrepiece, surrounded with Raspail Improved Pelargonium and Marguerites; next to these were Golden Fleece Pelargonium and Iresine Lindeni; the edging was composed of Koniga maritima, large, circular plants, a foot in diameter, covered with white bloom, and between each plant of Koniga a plant of Begonia semperflorens 6 inches high. Another bed contained Salvia Horminum associated with orange-coloured Celosias, the effect of the rich purple-coloured Salvia and the orange colour of the Celosia being very striking. Those who have not used Salvia Horminum in their flower-garden may be recommended to do so. The bed was edged with Golden Harry Hieover Pelargonium and Mesembryanthemum. Another bed had a plant of Souvenir de Bonn Abutilon in the centre, then Archduke

Rudolph Pelargonium, scarlet with purple shade; then golden-leaved Pelargonium, and in front Begonia semperflorens rosea and Königa maritima.

Another series of beds is near to the bear's den, where a most harmonious bed was planted with East Lothian Stocks (perpetual flowering Rose), interspersed with the variegated Abutilon Souvenir de Bonn, a stronger growing variety than the choicer A. Savitzii, and edged with Centaurea candidissima. Next we noticed yellow coloured Celosias, with Carnation Duchess of Fife, and Viola J. B. Ridings.

The flower-garden proper contains a very large number of beds, more informal in arrangement, and of various sizes. In some of the larger ones are planted Eucalyptus and Bamboos, with Nicotiana affinis or Balsams, and large plants of Heliotrope, which are stalked only loosely, and have a pleasing wavy appearance under the least breeze. Large specimen plants of Dracæna australis, Agave americana, and Ficus elastica, plunged in the grass between the beds, and the manner in which the beds themselves are planted secure the best effect possible, variety in outline, absence of dead levels, or patches of unrelieved colour, and at the same time none of the beds are dull or unattractive.

Mr. J. Young had considerable experience in general gardening in some of the best places in Scotland, before he came south to take charge of the horticultural department of the Zoological Gardens, and during the twenty-two years he has been in London, he has made flower gardening his principal study. Those who have had the opportunity of seeing his work there will accord him the highest praise for the effects he obtains, even in such a disappointing season as the present one.

CONVALLARIA MAJALIS PROLIFICANS.*

We have written more than once about this new Convallaria, and now offer our readers an illustration of it with the following description. The drawing (fig. 45) shows a pot of the Convallaria, and the plants are numbered. No. 1 is a common spike flowering with bunches; Nos. 2 and 3 are young small plants flowering commonly without bunches, but as a rule surpass those already, nevertheless all other kinds of Lily of the Valley, also the "Fortin," the few but well-formed flowers are usually of a size not hitherto seen, and there are 20 flowers on one stem. On a flower-stalk of No. 2, which stands behind No. 4, nineteen flowers can be seen. No 3 is rather stronger; in the place of the lowest flower, a small cluster of flowers is already formed. No. 4 is a weak plant, but is flowering with two flower-stalks, whereon are bunches of flowers. No. 5 is a plant with two flower-stalks flowering as before without leaves, which may often be seen; the leaves are in this case growing very slowly. In No. 4 and No. 5, both bunch-flowering, the flowers are not yet open. Of No. 4 the flower-stems may be seen with difficulty. The photograph, which is half life size, was taken on May 28; the spikes were planted in April, the strong flower-stalks were at the moment not in flower, and could therefore not be included in the photo, the leaves are half-grown; the flowers which are milky white, have a very strong and delicious perfume. The illustration gives a general view of this new but remarkable Convallaria, which, when more cultivated and improved, will very probably produce still larger flowers and heavier flower-stalks, and in 1903 the Convallaria majalis prolificans Vrengdenhill "Perfection," may be at least twice as strong as now. This Convallaria is well suited for decorations; the flower-clusters of strong plants can be separated from the flower-stalks, and used separately for decoration work, bouquets, &c.; one flower-stalk of such a strong plant is in itself a bouquet, and where now three or four sprays of the common Lily of the Valley are used for a button-hole, one flower-stalk of this "New Perfection" will in future be quite enough.

For the present this illustration suffices, because flowering-crowns are not yet strong enough to make good pictures, and because this variety will be still further improved in each successive year; and therefore a complete collection of pictures of it will be made in 1903 and 1904, and offered for inspection. The flowers are already, considering the circumstances, unusually fine. This "New Perfection" Convallaria majalis prolificans, Mr. J. Vrengdenhill considers to be a useful market plant. The *Gardeners' Chronicle* of June 1, 1901, mentions this Lily of the Valley: "The Proliferous Lily of the Valley. Mr. J. Vrengdenhill sent out specimens of this variety, and where under ordinary circumstances there is a solitary flower-bell pendulous from a short stalk, there is in the prolific form a close cluster of flowers, of which the terminal one expands first, and the others in succession from above downwards, thus forming a cymose raceme." *J. Vrengdenhill.*

Fig. 45.—Convallaria majalis prolificans.

* Translated from the *Weekly Floral Paper for Flower-bulbs, cultures, &c.*, of June 14, 1901, Haarlem, Holland.

PLANT PORTRAITS.

Cypripedium "Frau Geheimrath in Borsig."—A cross between C. insigne ♀ and C. Chamberlainianum ♂. *Garten Flora*, August 1.

Dendrobium moschatum × D. Bensonæ. *Die Garten Welt*, August 2.

Lælio Cattleya "Madame Marguerite Fournier."—Cattleya labiata ♀ × Lælia Digbyana ♂.

Monarda menthæfolia, Graham. *Mechans' Monthly*, August.

WESTONBIRT, TETBURY.

Captain G. L. Holford's fine estate in Gloucestershire is one of the most extensive and best managed in the west of England, and within its limits a walk of several miles in length might be taken through garden-like pleasure-ground, to the equally carefully tended farmed land beyond. The home portion of the estate is bounded by a belt of trees some 4 miles in length, and in which grow large numbers of rare and handsome shrubs. The effect of the various tints of the deciduous shrubs in autumn and winter is very charming, and is in parts heightened by the stems of Polygonium sachalinense, and some other similar plants after the foliage is gone, and which are allowed to remain, the colour being reddish-brown.

Around the fine mansion of Westonbirt, which is situated on elevated ground, the evidences of gardening carefully pursued through a great number of years are visible on every hand. The natural beauty of the undulating ground has been heightened by planting large clumps of shrubs forming terraces, the introduction of sheets of water, and planting as isolated specimens the rarer Conifers and other species of trees. Among these are grand examples of the Deodar Cedar, now being some 80 ft. in height; noble Lebanon and Mount Atlas Cedars, one of which, C. atlantica glauca, is about 40 feet in height, and a singularly beautiful specimen; Cupressus arizonica (?), also glaucous; Abies concolor, and examples of the other rare species, the earliest procurable plants having been planted. The trees of Liriodendron Tulipifera and Catalpa bignonioides were also among the first of their kind to be planted in England. Both are beautiful when in flower, and the latter is also a striking object when bearing a heavy crop of fruits, as it usually does.

Our first visit was made in the spring-time, when the bulbs beneath the trees and on the lawn at the edges of the clumps of shrubs were in fine bloom. Blue Chionodoxas and Scillas, showy Crocuses and Narcissi, scarlet Anemone fulgens, and other spring flowers, appeared very beautiful as grown naturally in this manner. Under one large tree a colony of Cyclamen Atkinsii occupying almost as great an area as the head of the tree, was a pretty sight, rarely met with, the flowers pale lilac and rosy-purple. Mr. A. Chapman, the gardener, says that though care is taken when gathering seeds to select from plants which have dark-coloured flowers, those with paler tints always appear among the seedlings.

In the rockeries the Hepaticas were gay, as were the Anemones, Iris reticulata, and other spring Irids, Daphnes, Magnolia stellata, and other spring-flowering plants and shrubs. In a sheltered nook in one of the rockeries a gigantic specimen of Rhododendron præcox was a mass of flowers, rivalling in beauty the larger-flowered Azalea indica.

On the occasion of a more recent visit, the garden showed its summer aspect. The beds in the Italian or geometrical garden were gay with showy flowers; the herbaceous plants in the beds running round the square, and on each side of the broad walk were also gay with flowers. The wall at the back of this garden (Supplement), which has a pavilion at each end, has been a favourite situation for many years past for testing rare and tender trailing shrubs, the raised border beneath it being warm and very suitable for the purpose; and many successes have been achieved there. Here the earliest plants of Ampelopsis Roylei, A. Veitchi, and A. tricuspidata were planted, and in those days their coloured leaves formed a great attraction. These plants as seen here are quite distinct for garden purposes, although some authorities place—the two last, at least—under Vitis inconstans. Pyrus Simonii is a brighter scarlet, and larger than P. japonica; plants of Choisya ternata produce flowers in profusion; Magnolia grandiflora and other wall shrubs are aged specimens which flower abundantly. In the border beneath, planted close to the foot of the wall, the Belladonna Lily used to send its heads of white and pink blooms half across the border, six or eight spikes deep, but they were replanted, and do not now flower so well as formerly; Sprekelia formosissima has grown and flowered here outdoors for years, and other Amaryllids have been tried with various degrees of success.

The fashion in flowers is changing constantly, and not always for the better. In the front part of this raised border under the wall, in the early days of bedding Verbenas, a grand show of Scarlet Defiance, Géant de Batailles, pink Magnificent, Melindres splendens, and other of the earlier varieties, as well as home-raised seedlings, used to be a sight which attracted visitors from the country round.

Japanese Maples thrive well at Westonbirt, and fine old specimens of Acer polymorphum, A. p. dissectum, A. p. atropurpureum, and other beautiful cut-leaved varieties, are planted here and there in nooks, some of them being 8 ft. in height and as much through. Captain Holford says that the chief aid to successful management of these Maples and Tree Pæonies, and many other shrubs which should make rapid growth in the early part of the year, is to apply water copiously at the root at that season. Similar treatment would have saved many thousands of fine trees and shrubs which have been reported to have died by the rigours of the winter, but whose death in most cases resulted from starvation for want of a sufficient water supply to complete their growth early in the season, and mature sufficiently to enable them to withstand frost. And by the same rule, trees which have been injured by drought and cold may often be brought round quickly by a thorough drenching of water in the spring and early summer.

The view from the plateau on which the mansion stands is a beautiful one. On one side of the house is a large Yew-tree, with shrubberies beyond; and on the other a Cedrus atlantica glauca, some red Cedars and other Conifers, and the slope is made into terraces, each of which is ornamented with suitable plants. The third terrace has a dwarf wall at the back, and on it grows Carpenteria californica, which has been planted fifteen years; it is covered in its season with its pretty white flowers. The showiest and most useful subjects on the wall in this part of the garden are the different varieties of the old China Roses, which bloom throughout the season till the frosts come; these are mostly on their own roots. At the corner of the wall in spring a plant of Parrotia persica in flower is a pretty object, and little-known and pretty flowering shrubs are continually cropping up prominently when in bloom.

The Water Garden.

This is on the lower level of the slope, its banks planted with marsh plants, various species of Iris, &c.; the rockeries around having Ericas, Ferns, Pernettyas, and similar low-growing plants; the water here, as in the other ornamental waters near the Italian garden, having a good show of Nymphæas, including the varieties of Marliacea, Laydekeri, gloriosa, chromatella, and others, giving their fine blooms of white, yellow, rose, or crimson colour.

(To be continued.)

A FORECAST OF THE SEED CROPS.

Finding myself in the company of Mr. John Harrison (Harrison & Sons), of Leicester, on the occasion of the recent Abbey Park Flower Show, and knowing that the firm are extensive growers of seeds, and knowing also that Mr. Harrison had lately made an inspection of the crops, I asked him for his experience as to the present character and probable yield of the leading garden vegetables and agricultural roots. Mr. Harrison said it is many years since there was seen such a vigorous growth of vegetables generally, which had been made since the middle of the month of May, occasioned by fine sunny weather following close upon heavy rains, giving vegetation conditions of weather badly needed, namely, sunshine and warmth. But since the second week in July cool and cloudy weather has prevailed, which has much retarded the development of those crops which are amongst the earliest harvested, and delayed the growth of later ones. So far the season brought its anxieties; but a spell of real summer weather, warm and dry, would greatly improve the crops.

Peas.—Early Peas promise to be a good crop, but they are ripening slowly; the samples bid fair to be satisfactory. Late Peas require sunshine to finish the crops, and if fine, warm weather does not quickly come, there will be either bad samples, or the Peas will not be fully matured.

Broad Beans.—The plants are continuing healthy and vigorous, although at one time the black or smother-fly threatened to considerably affect the crops, but the recent spell of cold weather operated to prevent increase of this pest.

Brassicas.—All the members of this tribe are suffering for lack of sunshine, and mildew is prevalent in many cases.

Runner Beans.—These are blooming plentifully, but as they are a late ripening crop, no opinion can yet be expressed as to probable results.

Beets and Mangel Wurtzels.—Both crops have made an enormous growth, and up to the present have escaped an attack of black-fly, which it was feared a week or two ago would cluster about them. Here again the cold weather has operated to keep the pest in check.

White Turnips.—A good crop of seed has resulted, and it has been secured in generally favourable condition.

Swedish Turnips.—These show a lighter yield than in the previous case; it is a crop which requires a longer time to mature than in the case of the white Turnips.

Onions.—This is a crop which up to the present time promises well, but is largely dependent upon the state of the weather to thoroughly mature it; judging from present appearances there is the promise of a good crop.

Carrots.—Carrot-plants have made an unusual growth, and so far promise a large crop of seed, both at home and on the continent, better than has been experienced for a few years past; suitable weather is needed to mature the crop.

Radish.—Here again a good growth has been made; the plants are blooming well, and there is every promise of a good seed crop, here and abroad.

Potatos.—This important crop has done badly owing to the prevalence of a low temperature; many of the sets made a weak growth, some failed; in cases the growth has been satisfactory, though the condition of the soil has produced much super-tuberation. The quality of the lifted tubers is generally indifferent, a testimony borne by hotel and restaurant keepers.

Mr. Harrison concluded by saying that a few weeks of warm, dry weather would be of incalculable benefit to the seed grower, gardener, and farmer alike. *Pisum.*

UNITED STATES OF AMERICA.

THE AMERICAN CHRYSANTHEMUM EXHIBITION.

The date of the above exhibition, to be held under the joint auspices of the Chrysanthemum Society of America and the Horticultural Society of Chicago, at the Art Institute, Chicago, was first appointed for November 4 to 8, but has now been changed to November 11 to 15 inclusive. This is the first exhibition attempted by the national society, and the arrangements made for it by the local society are most satisfactory. The main exhibition hall is 60 feet wide by 220 feet long and 30 feet high, with an annexe 40 by 80 feet. The conference hall—a beautiful and commodious chamber—in the same building, can be secured for meetings and discussions as may be found necessary. More delightful and appropriate surroundings for the great Chrysanthemum renaissance of America could hardly be imagined, and the building is located in the very best section of the city for the accommodation of visitors of every class and from every direction. The preliminary prize list may be had by addressing Edwin Lonsdale, Secretary, Chestnut Hill, Philadelphia, Pa. or E. A. Kanst, Assistant Secretary, 5700, Cottage Grove Avenue, Chicago.

FORESTRY.

A DESTRUCTIVE FUNGUS ON PINUS EXCELSA.

Several groups of Pinus excelsa in the Longleat woods are badly attacked by a "canker" fungus (specimens of which are forwarded), which appears to be much more destructive than the majority of parasitic fungi in Great Britain. This fungus has been identified by Mr. Massee, of Kew (to whom specimens were forwarded by the Board of Agriculture), as Dasyscypha resinaria, a common fungus in the United States, where it attacks in particular trees of Abies balsameca. I have also met with it here on Abies lasiocarpa, but P. excelsa is evidently its chief victim so far. One group of about a dozen trees has been practically destroyed by it, and another group, nearly a mile distant, also appears doomed; both of these groups are on the greensand. The one most affected stands in a valley, and is rather confined by surrounding trees, although the soil is naturally dry and porous; the other stands nearly 800 feet above sea-level, and in an apparently favourable situation, as the trees have made good growth until affected by the parasite.

In the early stages of attack, the branches exhibit gouty swellings under the bark, upon which the cup-shaped fructifications appear later on. The "blister" resembles the well-known Larch blister, which is caused by a closely allied fungus. It apparently attacks the stem of the tree at a much later stage than is usual with the Larch disease, but this may not be the case with younger trees. The great frequency with which blisters occur on the branches of attacked trees would lead one to suppose that the mycelium penetrated the wood or bast, and extended itself throughout the tree by that means. On badly attacked branches blisters occur at intervals of every 2 or 3 inches, and it seems hardly possible that all should arise from spore infection alone. The blisters on P. excelsa are characterised by the abundant exudations of resin from the edges of the affected parts, which eventually congeals in large masses, and in advanced stages completely covers the stem by flowing down its entire length.

Whether this fungus is equally fatal in all cases, as in those cited above, experience alone will prove. Its extremely destructive character, however, renders it advisable to take all precautionary measures possible against the spread of the disease wherever it occurs. Cutting down and burning infected trees seems the only practical remedy, but when the disease is wide-spread this is not always possible without a great sacrifice of possibly much-prized trees.

The appearance of parasitic fungi in malignant forms on many introduced Conifers, proves the great risk attending their use on a large scale when planted for timber purposes. The majority of them doubtless follow the general law affecting the relations between parasite and host, and so long as the latter is strong and vigorous, it can usually hold its own in the fight. But now and again one is met with, against which the host plant seems helpless and unable at the best to do more than keep pace with the growth of the fungus. In such instances, the favourite theory seems to be inadequate the further careful investigation is made, although this is probably a habit of most theories when applied to concrete cases. Why a tree should be practically immune from attack in one locality, and almost annihilated in another, no one seems able to satisfactorily explain. That a cause or causes exist, no doubt need be entertained, but they are often so obscure, and apparently so opposed to conclusions hitherto arrived at, that they are rarely suspected. "Realise the fact that you don't know," was the usual advice of a professor of our acquaintance, and it appears to be advice which might be applied with advantage to many who attempt to explain the relation between cause and effect in fungoid attacks. *A. C. Forbes.*

VARIATION IN PLANTS.

Few subjects are attracting greater attention now-a-days than those relating to variation in plants. The student will find numberless records and illustrations in our columns, the collation and corelation of which ought to afford facilities for the investigation of the why and wherefore. The illustration we now publish (fig. 46) was obligingly sent us from Chambezy, near Geneva, by Mr. William Barbey, and represents two distinct varieties of Miltonia Roezlii flowering on the same plant. The one to the right hand is destitute of the purplish blotches on the lateral petals. The photograph was taken by M. Revilliod, of Nyon.

Fig. 46.—MILTONIA ROEZLII WITH DIMORPHIC FLOWERS.

"Cassell's Dictionary of Gardening," edited by Walter Wright, has now reached its 15th part, which brings the work up to the genus Prunus. It is well got up, and the information given is accurate, and sufficient for most garden purposes. We regret to see that the personal names when used in the form of adjectives are printed without an initial capital letter. As this is now the usage at Kew, the Editor can plead the highest authority for the practice; nevertheless, it is a matter for regret, as an unnecessary departure from established botanical practice.

ALPINE GARDEN.

HEUCHERA BRIZOIDES "LA PERLE."

This is one of the newest of the Heucheras raised by M. Lemoine, of Nancy, and it has flowered well here this season. It promises to be a useful variety, although it is not so pure in colour as one could have desired. In this respect it is inferior to the older Heuchera alba, although the individual blooms are larger, and the inflorescence thus more conspicuous. These blooms are about equal in size to those of H. Zabeliana, but are white, with a tint of creamy-white, green, and rose. It has grown to a height of about a foot in the open, though I anticipate it will reach a greater height another season. H. brizoides La Perle promises to be a free bloomer, and even this year a small plant has given a good many spikes of flower.

H. BRIZOIDES "FLAMBEAU."

This is another of M. Lemoine's novelties, and it promises to become a favourite, if it maintains the freedom of bloom it has shown here this season. In colour it is rather deeper than in that charming plant, H. sanguinea, which is, unfortunately, so disappointing in many gardens, and the flowers are hardly so open at the mouth, though of good size as a whole. It is a little taller than La Perle, and the flowers are more numerous. Rose-lake is fairly near the tone of colour, though perhaps a deep rose would more appeal to our colour sense. It is a bright-looking flower, which ought to come in usefully with other flowers for cutting, as well as from the attractions of the plant in the

rock-garden or border. These two Heucheras, which have pretty foliage as well, ought to be perfectly hardy throughout these islands.

PHLOX SETACEA CŒRULESCENS.

This pretty dwarf Phlox is one of those sent out by Mr. Henkel, of Darmstadt, and it promises to be a valuable one to all who have a liking for the many charming mossy Phloxes which form such fascinating ornaments of the rockery in their season. Its colour is pretty well indicated by the varietal name of cœrulescens, and it is really more bluish in its hue than any other variety I know. It is not difficult to conceive in how many ways this bluish variety can be employed. The habit is compact, and the flowers, though small in size compared with some of the early Phloxes of its class, are larger than such varieties as Vivid. So far as I am aware, this variety has not yet found its way into many gardens in this country.

ALYSSUM ALPINUM SUFFRUTICOSUM.

This little alpine "Gold Dust" has reached me by way of Italy, and I am indebted for its possession to Mr. Sprenger. Not a showy plant on account of the small size of its yellow flowers, it is nevertheless one of those pleasing little things which are always dear to the heart of the alpine plant-lover. As its name would indicate, this Alyssum is suffruticose, and it forms a rather trailing, hoary little plant, which does not ascend more than 3 or 4 inches above the soil, though it spreads considerably along it. It has not been long enough here for its hardiness to be tested, but I do not anticipate any difficulty in wintering it without any protection on a dry sunny rockery in sandy peat and grit. *S. Arnott, Carsethorn, by Dumfries, N.B.*

WEEDING IN INDIA.

IN the hilly districts of western India, along the Sahidra mountains or western Ghauts, where rain falls nearly every night during June to September, and even in daylight hours the clouds descend with striking frequency, the weeding of the principal grain crop, called Natchni, is a carnival of hard work, conducted on a communal system.

The crop is a very prolific small-grained cereal, grown on steep hillsides under heavy rainfall, and transplanted when about a month from seed-sowing. Botanically it is Eleusine coracana, known as Natchni, Ragi, and many other names in India, Thibet, and Abyssinia.

Word having been sent round that the field belonging to Bagu, the son of Babaji, is ready for weeding, all the workers of the village, probably 100 or more, assemble soon after daylight at the house of Bagu. It may be raining heavily, and Bagu's house is not commodious; but as each guest carries a rain-hood made of split Bamboo and leaves, giving protection from crown to hip, and has Nature's waterproof on the limbs, the lack of house room is of little consequence. The guests arrange themselves in a semicircle, with back to the wind and with the knees at the breast, sit on the heels as only an Indian or a coal-miner can do, and eat a hearty breakfast of boiled Natchni, flavoured with Chillies and Asafœtida, amid discussion of the season's prospects and the character of the latest tax-gatherer. Then, headed by the village musician beating a drum with his hands, they proceed in single file to the field, and range themselves on the windward margin; at a signal the weeding-hooks are unhitched, the naked brown legs, doubling in front of the body, disappear as by magic, and weeding is started in time with a harmonious refrain, describing the mercy of the gods, the liberality of their employer, and the probability of dinner being equal to their sumptuous breakfast. But this is only a prelude; the drum is tapped faster, the voices rise higher, and the weeds are spitted with feverish energy as the song describes the doings of the old chieftains who held the mountain peaks, and took all they wanted from the people of the plains; and the drummer in rear of the line dances to and fro, beating with frantic gesture wherever the line falls behind, and the wave of song passing along the line keeps everyone working with demoniacal energy, while the frequent passing clouds leave everything dripping with water.

The field appears a quagmire, but from the steep slope and frequent rain the cultural result is satisfactory, and from a distance the effect of the rude music, re-echoed from mountain and glen, is plaintive and weird as the notes rise and fall in gentle cadence, or scream with fierce joy of battle as the workers emulate the deeds of heroes on the hapless weeds.

Early in the afternoon the workers return to the house of their host, a bedraggled and worn-out crew, who have done as much work in six hours as is usually done in twenty; they leisurely eat another meal, learn whose field is to be done to-morrow, and by sunset retire to their own homes, to repeat the orgie of labour daily while the weeding season lasts. *G. Marshall Woodrow.*

The Week's Work.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Miltonia vexillaria.—The plants are beginning to move again after their rest, and the chief repotting may now with safety be carried out. Before making a beginning, be sure the plants are free from the minute yellow thrips, often a source of great trouble to the cultivator, but which can be kept under by periodical fumigation with XL-All. If signs of this species of thrips are noticed, let each plant be dipped in quassia water; and in cases when the Orchid-grower finds that it is an impossibility to destroy this insect, let him spray the plants once a week with quassia water, which will do no harm to the plants, whilst it makes the leaves so bitter when frequently used that the insect deserts it for another more to its taste. A good compost for Miltonias consists of peat-fibre two-fifths, clean chopped sphagnum two-fifths, good Oak-leaf mould one-fifth; fill the pots to about one-third of their depth with chopped-up fern-rhizomes, and pot somewhat lightly. Do not employ large pots, but place the plants now in pots as small as possible without cramping their roots, and shift them again at the new year; the new material afforded at that date giving a great impetus to growth and the development of flowers. Another advantage in keeping the plants in small pots is, that the cultivation of the plants is easier to carry out. Remove much of the stale materials, also dead and decaying roots, but preserving intact all that are healthy. After repotting, apply water carefully, and afterwards keep the compost neither wet nor dry. When the foregoing sort of compost and the fern rhizomes for drainage are used, evaporation is much less rapid than under the old method, and water is not required so frequently, and it is always better to err on the side of dryness than the reverse. The plants should be placed in the Cattleya or a similarly heated house, and shaded for the present. It greatly helps to restore the plants to damp frequently between the pots and spray them overhead on days favourable for so doing. The repotting of the varieties M. v. rubella and M. v. Leopoldi, which flower later than the type, should be deferred till the new growths are further advanced.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Budleigh, Devonshire.

The Peach Wall.—Generally the shoots of Peaches and Nectarines should be afforded one more tie or shred, which should suffice for the season, and in so doing give the fruit full exposure to the sun. Owing to the sunless weather of the last few weeks, and the heavy rains, no syringing of the trees or application of water at the root has been necessary in this locality, and the trees are cleaner than usual, but should real summer weather set in, this must not be omitted till the fruit begins to ripen, when it must be discontinued for a time. I have found it necessary one or two very wet seasons to replace the glass coping towards the end of August, taking it off again immediately the fruit has been gathered, as it would favour the spread of red spider. If not already done, place short pieces of bean-stalk or bamboo about the trees as traps for earwigs, which frequently play havoc with these fruits on old walls if not dealt with in good time, examining these every day, and destroying those that may be caught. Where the rainfall has not been heavy test the borders, and if found to be on the dry side, apply water mixed with artificial manure or farmyard drainings, excepting to trees growing too much to wood.

Plum Trees.—As a rule wall Plum trees suffer from lack of water and manure at the roots, and if they were better attended to there would be much finer fruit, and the growth would be cleaner. Such dessert varieties as Washington, Kirkes, Blue Imperatrice, Golden Drop, and all the Gages, not omitting the Jefferson, one of the finest Plums grown, should be well cared for during the time the fruits are swelling. The surface soil should be lightly stirred or lifted with a digging fork, manure and water supplied, and a mulch put on if the soil is light. Where early stopping of the shoots is practised, a secondary growth will have been made which should be cut back as described for Pears in last week's calendar. Hexagon netting or similiar material must be placed over the trees having fruits upon them, or the birds and wasps will spoil the best fruits long before they are fit to be gathered.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Young Vines.—Such Vines as were raised from eyes in January, and planted in new borders in the months of May or June, almost on surface, should now be making short-jointed growth, and if roofing-slates or flagstones were placed over the roots, the latter will have come to the surface, and in that case fresh turfy loam chopped small and mixed with manure (Vine or other), should be placed on the roots and water afforded, which will assist the plants greatly. Maintain a temperature at night of 60° to 65°, closing the vinery in the afternoon of bright days about 3 to 3.30; syringing the Vines twice a day; keeping the air moist, and the foliage clean.

Pot Vines.—The canes of two-year-old Vines intended for early fruiting in pots next year, should now be matured and the plants at rest. For the present afford them just sufficient water as will prevent the loss of the leaves until as late a date as possible. Thick, leathery, clean leaves take a long time to die off, and the longer the better. Stand the Vines against a wall or fence outside during the month of September.

Early-forced permanent Vines now resting.—These Vines should be kept as cool as possible, and next month they may be pruned; meantime do not forcibly remove the leaves, but let them fall naturally. If it be considered necessary to do anything to the roots, the present

is a suitable season for so doing. Let the soil be removed with a steel fork, saving the roots as much as possible, and put the drainage in good order, leaving 2½ ft. for depth of soil. The soil should consist of fresh turfy loam, preferably that from a pasture-field, lime rubble, bone-meal, and Vine-manure being mixed with it. When throwing in these materials, let the soil be trampled pretty firmly and regularly; and when replanting the Vines, let the roots be kept within a few inches of the surface. Finally afford water copiously.

Mid-season Vineries.—See that the canes get well ripened, applying fire-heat if the warmth cannot otherwise be kept to 65° at night, and at 80° with air applied in the daytime. If the Vines are infested with any kinds of insects, the bunches of Grapes being cut, apply a suitable insecticide or warm soapy water by means of a powerful syringe or garden-engine.

Late Vinery.—The lack of sunshine, and the cold nights, compel great watchfulness on the part of the gardener, as the bursts of strong sunshine, when they do come, are likely to cause the scalding of the berries, especially those of Muscat of Alexandria and Lady Downes, if plenty of ventilation be not at once given.

Late Grapes that are colouring, or nearing that stage, should have air afforded night and day, and fire-heat sufficient to maintain a night temperature of 65°. The soil should now be sufficiently moist to carry the crop through the ripening period without more water being applied. The inner border may be covered with strawy litter, bracken, or hay, in order to prevent evaporation from the soil. The sub-lateral shoots must be cut back to one leaf beyond the point of origin. If mealy-bug is observed, put a drop of methylated spirit on it with a camel's-hair pencil.

PLANTS UNDER GLASS.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Mignonette.—The second or chief sowing of Mignonette should now be made. Having so recently dealt with this subject in my calendarial notes, I need not now repeat my remarks, except to emphasise what I then wrote as to the absolute necessity of mixing lime with the soil, without which the plants are mostly unsatisfactory.

Bulbs.—Gladiolus Colvillei and its varieties should now be potted up in sandy and rich loam, placing five or six bulbs in a 5-inch pot, and increasing the number for larger pots. The main and earliest lot of bulbs of Hyacinths, Narcissus, and Tulips, should be potted as soon as they arrive, and such minor subjects as Crocuses and Scillas should also be potted early, and a batch of the Aldborough Anemones, for flowering in March and April, should be potted up singly in 5-inch pots.

Lily of the Valley.—Retarded crowns may be flowered well at any time up to January, and as each batch comes to hand, the crowns should be potted up, afforded water copiously, and for the present stood in a cold frame and left to flower, which they will do in about three weeks; or they may go at once into a slightly heated house if wanted still more quickly. They should be well syringed, and the soil not allowed to get dry.

Cyclamens.—Seeds should now be sown in pans filled with sandy soil, autumn raised stock being preferable to that raised in the spring, for general purposes. The seeds will germinate quickly in a moist house, having an intermediate temperature, the one thing to be avoided being much heat.

Gloxinias.—The flowering season for most of these plants being over, the corms should be placed in a warm house and kept dry so as to mature the tubers. It is advisable to keep the tubers always in warmth, and not run the risk of exposing them to a chill.

Achimenes. — Plants going out of flower should be stood out in a sunny frame, and afforded water very charily till the foliage drops, when a quite dry treatment will suit them.

Hippeastrums.—The foliage on the Shipley bulbs is keeping green late this year, but they are now showing signs of ripening, and water will from now onwards be sparingly applied, and the plants kept in a very light house till the bulbs are thoroughly ripened.

Azaleas and Camellias.—These should now be building up their flower buds, a time at which manure water may be applied with advantage. For Azaleas it should be weak and very clear, but the Camellia revels in stronger doses, provided the drainage is perfect, and that the manure-water comes from the cow-shed, or is made of sheep's or deer's droppings and water. The cistern or barrel containing the mixture should have suspended in it a bag of fresh soot. Syringe the plants vigorously every afternoon with clear rain water, and do not allow insect pests to get established upon them.

THE FLOWER GARDEN.

By R. Davidson, Gardener to Earl Cadogan, Culford Hall, Bury St. Edmunds.

Plants for flowering throughout the Spring and early Summer.—The seeds of a number of varieties of hardy and half-hardy plants should be sown now, and amongst the most effective and useful are Violas and Pansies; and if seeds of good strains of these are sown forthwith in shallow boxes of light compost, moistened and kept shaded, germination will soon take place. As soon as the seedlings are large enough to handle, prick them off into nurse-beds at 3 ins. apart, and towards the end of the month of October excellent plants will be obtained for planting in their flowering quarters. They will flower continually and profusely until the plants become exhausted in June. In cold districts seeds should have been sown about the first week of the present month.

Propagation.—A commencement must now be made with the various kinds of summer-bedding plants, first preparing a light and porous compost, in which cuttings of Alternanthera, Coleus, Heliotropes, Verbenas, &c., may take root readily. Cuttings of bedding Pelargoniums and Fuchsias may now be inserted, but the more tender species of plants should be taken first, and the cutting-pots or pans placed in a frame where artificial heat is at command, shading them from bright sunshine for a few days. Cuttings of Pelargoniums may, after insertion in the boxes, be placed in a well exposed position out-of-doors for the present, but they should have protection from heavy rains. The principal point to bear in mind when propagating is careful selection of the cuttings, choosing only such as are sturdy and well ripened.

Gladiolus.—The plants may require manure applied once or twice a week, and a mulch of half-decayed tree-leaves, or stable-litter is beneficial. The flower-spikes must be supported with neat stakes, which should not reach higher than the lowermost bloom, as if taller stakes are used the flowers are liable to be injured by rubbing against them.

Pinks. — Whether these have been layered about the end of June, or struck from pipings, they should now be sufficiently rooted to be severed from the parent plants, and placed in well-prepared beds, into which a sufficient quantity of well-decayed manure, a little wood-ashes, and new loam has been dug, if the soil is naturally light and loose. The beds should be slightly trodden before the planting is carried out. A space of 9 ins. from plant to plant will suffice, and the soil should be made firm about the roots, if necessary using a rammer for the purpose. Afford sufficient water at planting time to settle the soil, and as often as may be necessary afterwards.

THE KITCHEN GARDEN.

By T. Turton, Gr. to J. K. D. Wingfield Digby, Esq., Sherborne Castle, Dorsetshire.

Leeks.—If planted in trenches, the plants will now require to be earthed up, an operation which must, as in the case of Celery, be gradually performed. The weeds in the bottom and sides of the trenches should be drawn up by hand, and clear water applied first if the soil is dry, subsequently affording clear liquid-manure or a good sprinkling of bone-meal, or quicker-acting artificial manure if the Leeks are required for early use. When liquid-manure is used, clear water should be applied before proceeding to earth-up. The soil and plants should at that time be in a fairly dry state, and the former should be afforded by cutting down in thin slices the sides of the ridges, covering up the stems to the depth of 3 inches. If the Leeks were planted deeply with a dibber in rows at 15 ins. apart, as I also recommended, the soil when hoeing between the rows to kill weeds will fill up the holes.

Globe Artichokes.—Cut away the old flower-stems when these cease to supply any more heads, and clear away decayed leaves, so as to allow the suckers to grow away freely. The present is the best season to pot up the latter for wintering in cold frames; they should be taken off with a heel, using for this purpose a big knife or sharp spud. The pots, 6-inch ones, may be plunged on a border facing north till the suckers are well rooted, when they must be afforded ample space and full exposure to the sun. Propagated in this manner annually, Artichokes need less labour than when the old stools are protected by leaves, &c.; and if planted in a sheltered position in April, they supply heads earlier than stools that are weakened by frost or the surrounding protecting materials.

Cauliflowers.—Sow seeds forthwith to raise plants for wintering in cold frames and hand-glasses, the varieties Walcheren, Early London, Veitch's Autumn Giant, and Pearl; although it is possible now to dispense with either of the first two named, and depend upon the forcing varieties and Pearl, sowing in the month of January. Where however heads of a larger size are required at an early date, these can only be obtained from those sown at this season. Veitch's Autumn Giant, wintered in frames and planted on a sheltered border in a good holding soil, as soon as the weather will admit of it being performed in the spring, affords heads throughout July when other varieties of Cauliflowers are not plentiful, and before it is possible to obtain this variety from early spring sowing.

Onions.—In northern counties, Onion-seed should be sown forthwith, but in the south, the end of the month is soon enough. If but a limited quantity of bulbs are required, sow the seeds between the rows of the newly planted Strawberries, the ground for which having been well prepared, is very suitable for this crop, and for Cauliflower, Lettuce, and Cabbage, and these being planted out in the quarters and borders in early spring do not interfere with the growth of the Strawberry plants.

Lettuce and Endive.—The plants of the July sowings of Bath Cos Lettuce and Endive should be thinned, and the stronger plants of both set out on warm borders for furnishing early winter supplies, and the weaker set out on warm borders and protected later with lights from frost; or they may be planted forthwith in cold frames, the lights of which should not be placed over them until fogs and frosts occur. Make a final sowing of Brown Cos Lettuce, the plants to stand in rows for the winter in the driest possible position. Sow also Stanstead Park Cabbage-Lettuce, for early spring use, and Commodore Nutt very thinly for early winter use. Sow thinly on a warm border, green-curled Endive, for planting in pits for late winter use.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, AUG. 23—Harpenden Horticultural Society's Show.

WEDNESDAY, AUG. 27—Bath Floral Fête.

THURSDAY, AUG. 28—Arundel, Littlehampton and District Agricultural and Horticultural Society. Sandy and District Floral and Horticultural Society Show.

FRIDAY, AUG. 29—Bradford Horticultural Society Exhibition.

SALES FOR THE WEEK.

MONDAY, AUGUST 25—
Great Trade Sale of Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 11.

THURSDAY, AUGUST 28—
Great Trade Sale of Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 11.

FRIDAY, AUGUST 29—
Great Trade Sale of Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 11.—Orchids, by Protheroe & Morris, at 12 30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —60·8°.

ACTUAL TEMPERATURES:—

LONDON.—*August* 20 (6 P.M.): Max. 69°; Min. 53°.
August 21.—Fine, warm.

PROVINCES.—*August* 20 (6 P.M.): Max. 65°, Eastern Counties; Min. 50°, Hebrides.

The Shrewsbury Show.

THANKS to the persistent energy of Messrs. ADNITT and NAUNTON, backed by the committee of the Shropshire Horticultural Society, the Shrewsbury show has come not merely to represent the horticultural effort of a county, but the best cultural skill of the whole kingdom. We do not go to Shrewsbury to see the newest introductions, nor illustrations of the possibilities of future progress in hitherto untried directions, but we do go to see the very best that the present race of gardeners with their present means and appliances can produce. By a process of evolution the Shrewsbury show has become a great object-lesson, and if little beyond this is attempted, it is because circumstances show that this is the course best adapted to the circumstances of the time. That Shropshire folk are not blind to other considerations, is shown by the fact that it is to their Horticultural Society that the nation owes the statue of the great Salopian, Charles Darwin. This is the circumstance which beyond all others has lifted the Shropshire Horticultural Society to a position which no other society of the kind has hitherto attained, and which does it infinite honour.

The magnificent prizes offered by the Society do certainly bring out into bold relief the cultural skill which excites so much emulation and admiration. Documents before us from many of the competitors show how year after year, at this place or at that, the Grape-growers have contended in friendly rivalry to such an extent that, in some cases their whole career seems to have been one of prize-winning. If the successful candidates were not "thorough," this devotion to one department of their work might be objected to; but it is notorious that it is not only the best man who wins, but that he is best because the attention he gives to details in other departments secures for him the best chance of taking a high place in the competitive classes. On this occasion, referring to the class for twelve bunches of Grapes, the judges were Messrs. CRUMP and SPEED, both all-round men, albeit exhibitors on many an occasion, and men in whom their fellows rightly place the greatest confidence. Of the competitors, the first is Mr. SHINGLER, gardener to Lord HASTINGS at Melton-Constable, who is so modest that he says in a letter before us, "I do not think I have anything to say worth publishing." Other people, especially after recent experience, will think differently. Mr. DUNCAN BUCHANAN, of the Heath Vineyards, Kippen, Stirlingshire, comes next in order, and so long as the Diamond Jubilee Grape exists he is not likely to be forgotten. Mr. LUNT, on this occasion, comes third. We have had the opportunity before of recording his name in the chronicle of fame, and the same may be said of Mr. GOODACRE, the hero of many a contest, who on this occasion stands fourth. Next in sequence comes Mr. CAIRNS, now of Balruddery, Dundee—a formidable antagonist at Edinburgh and other places, and who won the blue ribbon at Shrewsbury last year. Last in this contest of the Titans is Mr. COATES, of Llanfairfechan, N. Wales. The highest number of points obtained out of a possible one hundred and twelve was one hundred and five and a half, the lowest eighty-seven. For fuller details relating to this show we must refer to our report. Portraits of some of the prizewinners are given in our present issue, and next week we hope to find more space for comments on the career of the laureates. In the meantime, we must remind our readers that it is not only skill and care that tell, but the changes and chances brought about by seasons of which this has been one of the worst. The fine "finish" that characterised the best exhibits was a matter for surprise even among experts.

The money taken at the gate on Wednesday, August 20, amounted to £1,004, thus exceeding any first day takings by £74.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—As a thank-offering for the recovery of the KING, and to commemorate the Coronation, the board of management of the Gardeners' Royal Benevolent Institution, of which charity his MAJESTY is patron, have placed on the funds without election all the subscribing candidates who were on the list awaiting aid; and to the non-subscribing applicants the sum of £5 each from the "Good Samaritan Fund" has been allotted.

PRIVY COUNCILLOR PROFESSOR DR. ENGLER, Director of the Berlin Botanical Gardens, has undertaken a journey to East Tropical Africa in the interestof botanical research.

"JOURNAL OF MYCOLOGY."—Dr. KELLERMANN, of the Ohio State University, Columbus, has resuscitated the journal formerly published under this name. It is to be devoted especially to North American fungi, and contains a valuable index to the literature of the subject for 1901.

AUGUST WIEMANN, head gardener at the Botanical Gardens, Vienna, has been promoted to the post of garden inspector.

GABRIELE WASTELLY.—We read in MÖLLER'S *Deutsche Gärtner Zeitung* of the death recently, at Bad Puciosa, of this eminent nurseryman, of Bucharest, at the age of seventy years. The nursery, one of the largest in the city, was in existence from 1848 to 1898, and for eighteen years the business was conducted by Mr. WASTELLY. Many gardeners from Germany, Austria, and the neighbouring States will learn of his decease with regret.

ORCHARD AND BUSH FRUIT PESTS.—The Royal Agricultural Society of England has issued a sixpenny pamphlet, written by the Society's zoologist, Mr. CECIL WARBURTON, M.A., F.Z.S., with the title *Orchard and Bush Fruit Pests, and How to Combat Them.* After giving the ingredients and the methods of preparation of a few of the most useful and readily-mixed insecticides, the pamphlet describes a number of commonly occurring insects affecting the leaves, blossoms, fruits, or wood of orchard trees, including, for example, the winter moth, red-spider, Apple-blossom weevil, codlin-moth, Pear-midge, the woolly aphis, and goat and leopard-moths, with the best methods of preventing their attacks, of checking their depredations, or of destroying them altogether, where possible. The same kind of information is given with regard to various insects infesting Currants, Gooseberries, and Raspberries, such as the Magpie-moth, the Gooseberry and Currant saw-fly, the Currant clear-wing moth, the Black Currant gall-mite, and the Raspberry-beetle. The pamphlet is illustrated with twelve original woodcuts, and is published for the Society by Mr. MURRAY.

COHUNE PALM NUTS.—In British Honduras the Cohune Palm grows over a large extent of territory without any care or attention, and it having been ascertained that the kernel yields a supply of first-class oil, it has been determined to place the nut on the market, provided a machine can be invented by means of which to crack the nut and so to secure the kernel uninjured and ready for the oil extractor. The Agricultural Society of Belize has the matter in hand, and a barrel of Cohune nuts is now on the way to Mr. CURRIE, of the Imperial Institute, and he, we believe, will see to the placing of the sample before the trade. Mr. CURRIE, we are informed, has reported that the value of the nuts is about £17 per ton.

CHAMBRE SYNDICALE DES HORTICULTEURS BELGES ET SOCIETE ROYALE D'AGRICULTURE ET DE BOTANIQUE DE GAND.—The last monthly meeting of the Chambre in the Casino at Ghent took place on August 4, 1902. Certificates of Merit were given to Cattleya Wavriniana hyb. and to C. gigas × C. Schofieldiana, shown by M. le Marquis DE WAVRIN; to Lælio-Cattleya elegans Mossiæ, to Lælia majalis, to Cattleya Gaskelliana cœrulescens, to Cattleya Harrisoni alba, and to Lælio-Cattleya prasiata hyb. nat. L. purp. × C. Leopoldi, all from the same exhibitor; to Odontoglossum Adrianæ, shown by M. TH. PAUWELS; to Platycerium Angolense (Congo), shown by M. L. DE SMET-DUVIVIER.

Portion of the Italian Garden at Westonbirt, Gloucestershire, the Seat of Captain Holford.

Honourable mention to Odontoglossum Adrianæ, shown by M. Th. Pauwels. In the second section, Certificates of Merit were awarded to Dracæna Yuccæfolia, shown by M. Ed. Pynaert Van Geert; to Kentia Belmoreana aurea, shown by M. L. Cardon; to a bouquet of seedlings of the single-flowered Dahlia Prince Albert, shown by M. Henne-Delbosse, of Tournai; and for those of Cactus Dahlia, from the same exhibitor. Certificate (unanimous) for good cultivation to Nephrolepis neglecta, shown by M. Van Haute-Bogaerts. Honourable mention (unanimous) for good culture to Kentia Fosteriana, shown by M. L. Cardon.

British Pharmaceutical Conference.—The meeting of this Association was held at Dundee, and was opened on August 12 with an address by G. Claridge Druce, Esq., M.A., who spoke at length on Scottish botany, from which, when space permits, we may be able to make some extracts.

Castanea vesca "Carpinese."—The *Italia Agricola*, July 30, has a figure of a variety of the Sweet Chestnut, remarkable for its very narrow leaves. The seeds, too, are said to be characterised by richness in saccharine matter, and the fineness and delicacy of its flour.

Motors for Market Gardeners. — At Hounslow, Middlesex, the centre of a large market gardening district, a syndicate of market gardeners has been formed, says the *Gardeners' Magazine*, for the purpose of selecting, by practical tests, the best kind of motor for conveying produce to Covent Garden and other London markets. One type of motor that has given most satisfactory results drew 5 tons of produce from Hounslow to Covent Garden in an hour and a-half, thus saving two and a-half hours as compared with horse traction. After the trials have been completed the syndicate will order motors for its own use.

Prof. Martens.—We have only now heard of the death in his seventy-second year of this gentleman on May 28. He was an Emeritus Professor in the Catholic University of Louvain, and an attendant at many of the horticultural and scientific meetings on the continent, and an occasional correspondent of this journal.

Nematode Worms in the Roots of Roses.—The *Florists' Exchange* of July 26 gives the results of some experiments made by Mr. Loose in conjunction with the United States Department of Agriculture, on the action of formaldehyde. It was found that a 1 per cent. solution was sufficient to kill the worms without injuring the plants. This is a very valuable discovery, and we hope it may be tried with Cucumbers, which are so very liable to the attack of these pests.

Botanical Exchange Club.—The Report for 1901, prepared by the Rev. E. S. Marshall, has lately been issued. It is of special interest to collectors and students of British plants, but contains various items which appeal to a wider circle. Coronilla varia is indicated as apparently naturalised on railway banks in South Lancashire. Of Diotis candidissima, which it appears is abundant on the sandy coast of South-east Wexford, two photographs are reproduced, which show the nature of the locality in which it grows, intermixed with Euphorbia Paralias. The young plants approximate in colour so closely to the grey pebbles among which they grow as to be with difficulty distinguished. The Rev. A. Ley notes the presence in quantity of Narcissus pseudo-Narcissus var. lobularis in a field in Herefordshire, but it is not quite clear whether the finder considers it to have been purposely planted or not.

Buddleia variabilis. — Messrs. James Veitch & Sons inform us that the plant of which they sent us specimens was named by the Kew authorities as B. albiflora of Hemsley. We had not the two forms before us at the time, but only the illustrations given in the *Gardeners' Chronicle* and in the *Botanical Magazine*, but in any case the two plants are very similar, though different in the stipules. Messrs. Veitch showed on Tuesday what we may call an improved B. variabilis, with larger, denser spikes; altogether a very fine introduction. This was appropriately named B. variabilis var. Veitchiana. As several specimens of the ordinary B. variabilis were shown at the same time in other collections, an opportunity was thus afforded for appraising the merits of this new introduction.

A Dinner and a Presentation.—The celebration of Coronation Day conjointly with that of the sixtieth birthday of Mr. J. E. Perkins, of the Billing Road Nurseries, Northampton, was the occasion of a pleasant gathering at the nurseries on Saturday afternoon, the whole of the *employés* of the firm of J. Perkins & Son, and a few friends, sitting down to an excellent dinner, furnished by the Guildhall Restaurant. After the usual loyal toasts had been duly honoured, Mr. W. Tomes, J.P., gave the health of Mr. and Mrs. J. E. Perkins; and at the conclusion of the Chairman's speech, Mr. W. J. Wills, on behalf of the *employés*, presented Mr. Perkins with a silver-mounted salad bowl, as a mark of their respect and esteem for him as an employer. Mr. Perkins acknowledged the present in a few well-chosen remarks.

Horticultural Lecturer in Scotland. —What we believe to be the first appointment in Scotland of a lecturer specially on horticulture has just been made by the East of Scotland Agricultural College, Edinburgh. The new lecturer is Mr. William Williamson, for thirty years head gardener to Mr. J. Home Rigg, of Tarvit, Cupar, Fife. Mr. Williamson is a well-known horticulturist in Scotland. His successes both at the Dundee and Edinburgh exhibitions speak for themselves. For many years he carried off the leading fruit prizes at Dundee. As a lecturer, he has also had considerable experience; and as a writer, his frequent contributions to horticultural papers testify to the practical and intelligent grasp he has of the whole subject. He is the author of two important and valuable books, viz., *The Horticultural Handbook*, a book specially adapted for exhibitors at flower shows; and *The British Gardener*, a handsome quarto volume of 400 pages, which treats of every phase of the subject. Mr. Williamson enters on his new duties in November. These will comprise visiting and lecturing throughout the twelve counties associated with the College, the subjects of lecture being varied to suit the circumstances of the different districts. Scotland lags behind England in this respect, where technical instructors and lecturers are employed in many counties in the south, striving especially to promote the fruit-growing industry among the rural inhabitants. The great outcry at the present time is for practical demonstrations of what to do and how best to do it—not so much for scientific knowledge. Mr. Williamson has a wild field before him, and we wish him every success in his new position.

HOME CORRESPONDENCE.

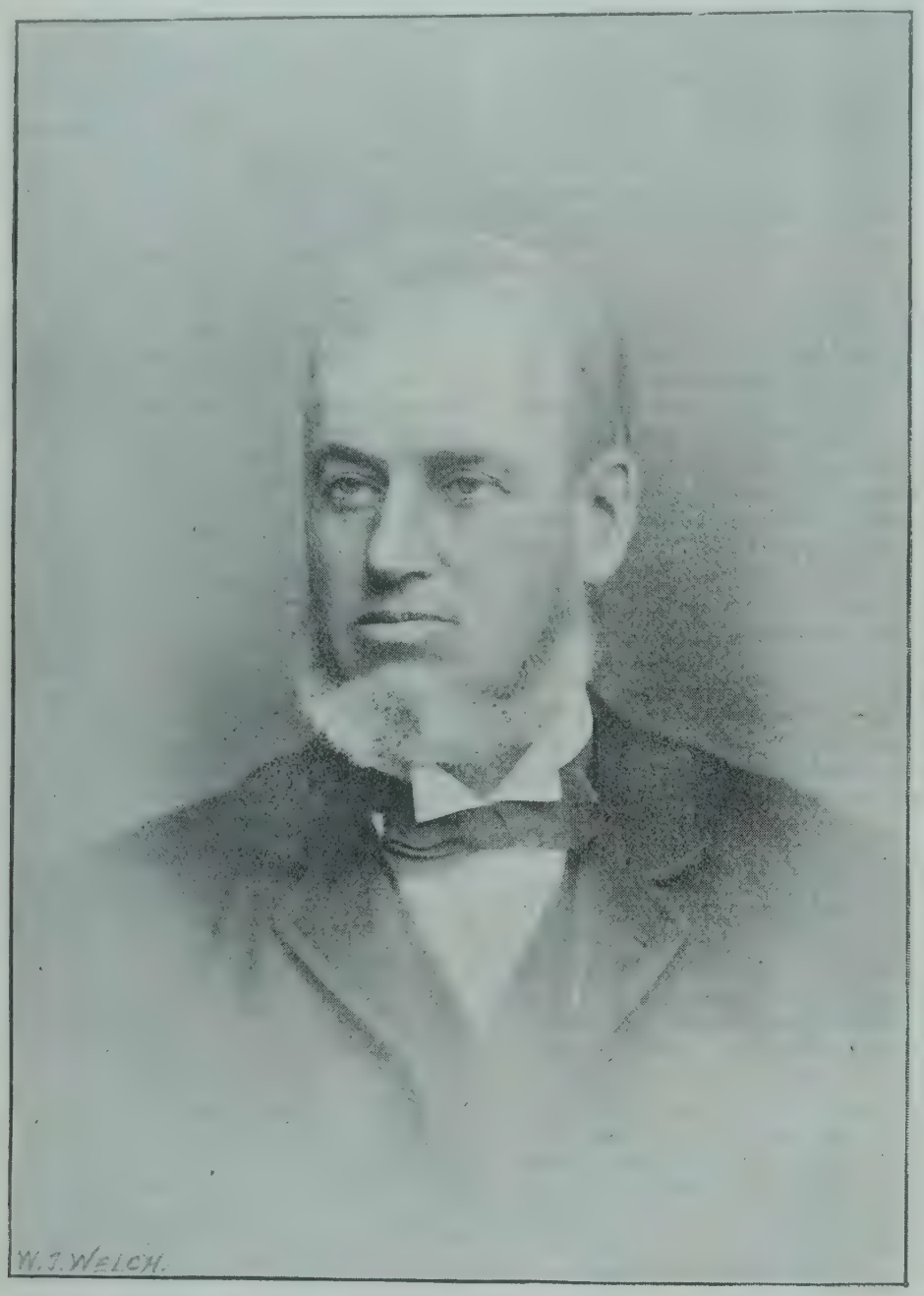
The Strawberry-grape. — Dr. Bonavia's remarks upon this variety, and his recommendation to use it for breeding purposes in your issue of the 2nd inst., escaped my notice until to-day. Though late in doing so, I should like to make some comment upon them with a view of saving some experimenter a large amount of useless trouble. My father used this American [?] variety freely in cross breeding, and raised several hundred seedlings from it, being I believe the first to attempt this cross with our eastern sorts. The results were most interesting, in the marvellous variation of habit and foliage shown by the progeny, some of the seedlings having leaves as small as a Currant, while one had foliage so ample that a visitor taking a sample leaf as a curiosity, found that it was larger than a sheet of the "Times," in which he attempted to wrap it; the fruit however was with one exception very inferior. The exception was the Grape known as "Ferdinand de Lesseps," which retains the peculiar scent of the Strawberry, and is immensely superior to it in quality. Being, however, small in bunch and berry, it has fallen out in the rush for size, and is now only grown by a few connoisseurs, among them being Mr. Hudson at Gunnersbury Park. These facts were published at the time, but the lapse of nearly thirty years has apparently caused them to be overlooked. In conclusion, I hope no one will be tempted by Dr. Bonavia to try this Strawberry for market, as when we grew it at Chilwell, it could not be sold or given away, and even schoolboys refused to eat it. The best description I ever heard of it was a gardener's, who said it was a "scented slug." *Chas. E. Pearson, Chilwell Nurseries, Lowdham.*

Sweet Peas at the Lodge, Doncaster.—Mrs. Rupert E. Beckett, of The Lodge, Doncaster, is a great lover of horticulture, and takes a pleasure and a pride in the well-kept gardens at her northern home. During the last few weeks the Sweet Pea, which is one of her special favourites, has flourished like the proverbial green Bay-tree, and as many as forty bunches a day have been despatched to the London residence in Park Lane. The garden contains some twenty-five different varieties of this now popular flower, which under the care and attention of the gardener, Mr. H. Foster, have been brought to great perfection. It goes without saying that all the best specimens are represented, and amongst these are the pearly-white Sadie Burpee, the pale lavender Lady Grisel Hamilton, the bright crimson Salopian, and the orange-pink Lady Mary Currie. The beautiful primrose Hon. Mrs. E. Kenyon, the salmon-tinted Lady Beaconsfield, and the soft yellow Queen Victoria, are very choice; whilst the rosy-pink Countess of Shrewsbury, and the bright scarlet Prince Edward of York, form a brilliant contrast. The Monarch is a magnificent purple, and the Aurora a lovely white flaked orange-salmon. In the deeper colours are the Countess of Cadogan, the Duke of Sutherland, and Othello, an extra dark. Altogether it is a most beautiful collection. *L.*

Lilium giganteum.—At different times a good deal has been communicated in the *Gardeners' Chronicle* about Lilium giganteum, but it may still be of interest to many of your readers to know how this fine Lily thrives in the west of Argyll. One specimen at Achnamara, the property of Colonel Malcolm, of Poltalloch, reached the height of 10 feet, and the circumference round the stem at the ground-level of 13 inches, a fact I think worth recording. At the same time in the same garden, three bulbs in a group flowered, the tallest reaching the height of 8 feet, and carried fifteen flowers. They grow in a border which cannot be called shady, which is fairly rich in vegetable matter. *D. S. M.*

Lychnis flos-cuculi.—Although I have seldom seen the white Lychnis growing wild, it is fairly common in this district on culti-

vated land. Last season, there was a field of Trifolium a short distance from here, and hundreds of white Lychnis appeared as dot plants. The effect was very curious, especially on cloudy evenings, when there was only sufficient light to give prominence to the white colour. The *London Catalogue* includes a white species, Lychnis alba; the *Treasury of Botany*, and J. W. Oliver's *Systematic Botany* mention Lychnis vespertina (white). Perhaps your correspondent "E. H.," has brought forward an indigenous plant that has a confusing number of



MR. JAS. MCINDOE.

names. Will someone kindly enlighten me as to the correct name? and explain in what manner it differs, except in colour, to the pink Lychnis Flos-cuculi. *C. P. Cretchley, Honeys Gardens, near Twyford, Berks.* [L. flos-cuculi and L. vespertina are quite distinct; your plant was probably vespertina. ED.]

THE NATIONAL DAHLIA SOCIETY.—I was much interested in reading the remarks of "A. D.," pp. 121 and 122, and I quite agree with him that great discrimination should be used in awarding Certificates of Merit; but all who have raised seedlings in any class of flowers know that improvements do not come by leaps and bounds, but by steady, gradual steps, and the Certificate or Award of Merit marks the yearly forward move. I quite agree it should be a distinct and decided step in advance, and the zeal for decreasing awards should be tempered with knowledge. I recollect attending one of the last exhibitions in the conservatory of the Royal Horticultural Society in the company of my father, who was a Dahlia grower of the old school. I called his attention to a board of Dahlias exhibited by Mr. Cannell, and consisted of Mrs. Hawkins, Juarezii, and picta formosissima. Mr. Cannell was walking round them full of energy, with his sleeves rolled up, and by the look of him you could see he thought he had a good thing in hand. And I remarked to my father that I thought so too; he said, "Tut, tut, we three had the likes of them fifty years ago," and that he distinctly recollected picta formosissima as sharing that fate, and he supplemented his remarks by saying he did not think at that time there were six men in England competent to judge show Dahlias. Charles Turner and John Keynes had recently passed away. *E. M., Newbury.*

RECENT MARKET PRICES.—Mr. C. Herrin, apparently has not done me the justice to read my original note in the above matter with care, for I assuredly made it very obvious that my remark as to Cabbages being little in demand, applied entirely to the few days during which the glut of Peas continued. If Mr. Herrin will again read the two last passages of my note, p. 104, I think he will be more convinced that he, not I, am wrong, when he attributes to a whole season what is clearly set forth for a few days. My note had no reference to prices a month ago, but to those gluts that now and then occur in all large markets, to the great loss of the grower. In such instances it is only by the prompt use of telegraph or telephone that worse does not follow, as by this means further delivery of produce may be avoided for the moment, and all those who know the market know the folly of comparing the prices of a few weeks ago with those ruling at the present time. It depends upon the quantity of the daily supply and the demand that market prices rise and fall, not from day to day, or week to week, but from hour to hour. Hence the week by week warning contained in the *Gardeners' Chronicle* heading under "Markets." *E. H. J.*

TREE-PLANTING IN SHEDDEN PARK, KELSO.—Messrs. Laing & Mather, the Royal nurserymen and seedsmen, of this town, set about, some time ago, selecting some of their fine standard ornamental trees, planting them in tubs, to be in readiness for the demand expected to occur amongst their clients in planting commemorative Coronation-trees, or "King's" trees. Of course, lifting trees from the open nursery during summer would not ensure successful planting, hence the transplanting in season and growing on in tubs; and some fourteen of the finest of these trees were offered to the trustees of Shedden Park,

MR. R. CAIRNS.

to plant in suitable vacancies around the park, also to replace some fallen monarchs that fell in the terrible gale of December 14, 1900. The trustees very readily accepted the offer, and these trees, now permanently planted, being tall and well grown, are already an ornament to the park. Amongst the trees were Betula alba, Tilia europæa, Sycamores, and Maples, so well known for their autumnal effect; and, in compliance with the express wish of the King for commemorative Oak-trees to be planted in public parks, in commemoration of the historic event, a specimen of the British Oak was given a prominent place. *Extract*, "*Kelso Mail.*"

DISEASED MELONS.—We have a house of Melons here in which are growing there different kinds, two scarlet and one green flesh; we also grow them in three different ways, pots, wooden-troughs, and planted out. The soil was all taken from the same heap, yellow loam with a little charred garden refuse added; this consisted chiefly of fine charcoal, grit, and wood-ashes, which had lain exposed in the open air for some time. What is troubling us is, that more than half of the house has a disease which I have never experienced before. In the morning the plant to all appearance seems quite fresh and healthy, before night a lateral droops and falls on the wires, and soon withers up; not only laterals, but a whole plant has done this. The fruits on some of the plants are attacked in the same way, and this at various stages of their growth; and the most puzzling part is, that this occurs

with each plan of growing, and side by side with healthy plants; soil, airing, and moisture being alike in all cases, and so far as I can judge this same treatment as last year when we were very successful. The fruit in some cases stops swelling, and soon spots of decay appear. This has also happened with full grown fruit just on the point of colouring, and I may add with plants to all appearance that are clean and healthy. If you can throw any light on the above through the *Gardeners' Chronicle* I shall feel obliged. I send specimens for your inspection. *J. W.* [We shall have something to say about this later on. Ed.]

Plagianthus lyallii.—This is a handsome, free-flowering, upright-growing shrub from New Zealand. The flowers, which are pure white, are borne in clusters from the axils of the leaves, and are nearly 1 inch in diameter. The plant is sub-deciduous, the leaves being 5 inches long and 3 inches broad. It is very free growing, producing its flowers in great quantities in July and August. It succeeds in any moderately rich soil, and can be easily propagated from cuttings. The plant here is 7 feet high, and 12 feet in circumference. It was imported in a Wardian case some years ago, and is, I believe, rare in this country,

MR. DUNCAN BUCHANAN.

though it has not been injured by our severest winters. *T. Ryan, The Gardens, Castlewellan, Ireland.* [The plant was figured in our columns on August 25, 1888. We have lately seen specimens from Westmoreland. Ed.]

Cotswold Hero Melon.—There are already so many good Melons in cultivation, many of which have been awarded Certificates and other marks of merit, that I sometimes doubt if there is either the necessity or possibility of improvement. Last year at a horticultural show of considerable dimensions it fell to my lot to assist in judging the fruit, amongst them being Melons. There were more than twenty competitors in this class, and I am sure there are many like myself who rather fight shy at judging Melons, especially when they are numerous. It is an unenviable job, and on this occasion I and my colleagues had much difficulty in arriving at a decision which we considered correct. The 1st prize went to the old favourite Scarlet Premier, and I thought at the time this fruit could not be surpassed for flavour, although its appearance was anything but attractive. This season when I received my seeds from a well-known firm, there was enclosed with these a packet of seed of a Melon called Cotswold Hero for trial, and I am happy to say that the result was most satisfactory, for I have never grown a finer Melon for flavour and for appearance; and this is also the opinion of my employer, who has desired me to grow it. The fruit is of a fairly good size, has a pleasing appearance, being beautifully netted, and of a lovely yellow tint when ripe. *T. A.*

Abies Douglasii and Araucaria at Dropmore.—I beg to thank Mr. Bartlett for drawing my attention to the error regarding the planting of the large Abies Douglasii by Frost. He is quite correct. Concerning the rumour mentioned by Mr. Dean, that a dense coating of manure had been put on the roots of the Araucaria, I can only state that there was no manure on them when I came to Dropmore in November, 1900. I understood then that a top-dressing had been used, but that it was removed some few weeks before I took charge. The dimensions of the Araucaria are: Height, 78 feet 6 inches; girth at 5 feet, 8 feet 7 inches; at the ground line, 10 feet; and spread of the branches, 48 feet. *C. Page.*

White Sweet Pea.—I send for your inspection a plant of White Bush Sweet Pea. It is a selection from the original introduction of the Bush. I have had it for three years, and

MR. THOMAS LUNT.

when grown with care find it very useful for forcing in pots and boxes. It is a great advance on the Cupids, and has several advantages over the tall varieties for growing as above, as it rarely exceeds 2 feet in height. The plant which I send for your inspection is from the open ground, grown without any special cultivation. Is it worth bringing to the notice of the Royal Horticultural Society? *James Machar, Bramwoods, Great Baddon, Chelmsford.* [It seems as if it would be very useful as a cut flower. Certainly, we should submit it to the Floral Committee of the Royal Horticultural Society. Ed.].

Why do planted Potato-tubers not decay?—At a recent meeting of the Vegetable Committee, at Chiswick, Mr. W. Bates mentioned that he had found non-decayed seed Potato-tubers to be an unusual feature this year when lifting the resultant crop; and he would like to learn of any explanation that could be given. The subject seems to be one that may be scientifically explained, and equally it may be so by practical gardeners; in any case the complaint is an old one, probably dating even from the time that Potatos were first grown in Europe. During the few hot, dry summers which recently prevailed, it was thought, the non-decay of seed tubers being very common, that the cause laid in the exceeding dryness of the soil; this year that cause has not been operative, as the soil has been fairly moist almost everywhere. It has also been held that if Potato-tubers be cut, or whole ones have a portion of the base of the tubers cut away before being planted, that decay will follow. Facts have shown that such is not always the case, and it does not remain a substantial explanation. It may be possible that the primary cause of this non-decay of tubers after planting is excessive hardening or maturing of the tubers in hot, dry seasons, thus rendering both skins and flesh less pervious to moisture than is the case when cooler and moister seasons cause tubers to be less hard or more sappy. Were that the reason, we ought to hear very little of the trouble next year, as the conditions under which tubers are being produced this year differ materially from those which have prevailed during some three or four preceding seasons. It may be thought a matter of small moment whether seed tubers decay or not, provided they produce in the spring good plant-growth. But all experience shows that where tubers remain hard and intact when the crop is lifted, the produce is always less than is the case when the seed tubers decay. It may be assumed that when such decay follows plant growth, not only are the young shoots being more effectually nourished, but that later the plant roots find in the decaying vegetable matter of the tuber, certain plant food which helps to productiveness. That being so, it is evident that on an extensive breadth the non-decay of such tubers leads to a material deficiency of the new tuber crop, with respect to what is termed over maturation of tubers. Mr. J. Smith, of Mentmore, mentioned a case in which a large breadth of a well-known variety growing in one field, had come very irregular, many tubers failing to grow at all, and was advised that the defect was due to over maturation, which so hardened the skins that eyes could not develop shoots; but he was able to point to a second breadth, of the same variety and stocks, in another field,

in which growth was throughout robust and perfect. Clearly, causes for these irregularities have to be looked for in other directions, and probably the diverse temperatures of the soil are the chief ones. *A. D.*

SOCIETIES.

ROYAL HORTICULTURAL.

AUGUST 19.—The Drill Hall was unusually gay on Tuesday last with flowers in season, herbaceous perennials, Gladiolus gandavensis hybrids and others, Godetias in great variety, very beautiful; Calliopsis, Clarkias, having double flowers; Fuchsias, Hollyhocks, Lilies. Besides these and many other showy plants, was a long table filled with Codiæums, and Roses as cut blooms were also observed.

Floral Committee.

Present: Wm. Marshall, Esq., in the Chair; and Messrs. James Walker, H. B. May, J. Jennings, J. F. McLeod, G. Reuthe, C. Dixon, R. W. Wallace, C. E. Pearson, E. H. Jenkins, W. P. Thomson, J. W. Barr, J. H. Fitt, C. Blick, Geo. Paul, Geo. Gordon, E. T. Cook, Wm. Howe, J. Fraser, and Wm. Cuthbertson.

Messrs. H. CANNELL & SONS, Swanley, exhibited largely bunches of flowers of Godetias Whitneyii, carmine, aurea compacta, Duchess of Albany, rosea alba, Sunset, dwarf, compact; Lady Albemarle, Pigmy, Spotted Carpet, Rosamond, &c. Other annuals in this exhibit consisted of Alonzoa Warscewiczii, lively scarlet; Coreopsis atrosanguinea and C. tinctoria, double-flowered Clarkias, in white, salmon-pink, and purple tints (Silver Flora Medal).

Messrs. STORRIE & STORRIE, Nurseries, Dundee and Glencarse, had an interesting exhibit, consisting of single-flowered tuberous Begonias in a variety of colours and of enormous size in some instances, one of them measured 7 inches in diameter. Very beautiful Lobelias, as Storrie's Invincible, of a purplish-blue colour, with a white centre, and of neat habit; Crystal Palace Compacta, a lighter shade of blue and smaller eye; Snowflake, white; Attraction, Royal Purple Superba, Brighton Blue, &c., all good decided colours, neat and compact in habit. This firm likewise showed their Invincible strain of Streptocarpus, Cockscombs, Celosia plumosa, and a curled-leaved Golden Feather, distinct.

Mr. T. S. WARE, Hale Farm Nurseries, Feltham, showed extensively Phloxes in great variety, Lobelia cardinalis of various colours, Gladiolus Lemoinei and G. gandavensis, Lilies, Crinums, including C. Powelli; Agapanthus, blue and white flowered; Heleniums, Platycodon Mariesii (Campanula), Yuccas, Scabious, Echinops, Lythrum, &c.; a mass of bloom that well exhibited the wealth of herbaceous plants, bulbs, and corms at the present date (Silver Flora Medal).

P. PURNELL, Esq., Woodlands, Streatham Hill, Surrey, showed a large floor group, the component plants consisting chiefly of Fuchsias in variety, bushy plants or standards, 2 to 3 feet in height and diameter. These were the "starers," and the plants placed between them were Celosia plumosa, in yellow and crimson; Coleus in variety, Palms, and Asparagus plumosus; the ground was hidden by Adiantum of species. As a scheme of arrangement with a limited variety of plants, it had its value (Bronze Banksian Medal).

Mr. M. PRITCHARD, nurseryman, Christchurch, Hants, showed a bright lot of hardy flowers. We noted among a mass of material often seen at the Drill Hall at this season a few things that were uncommon, if not new; for instance, Rudbeckia laciniata, fl.-pl.; Centaurea glastifolia, Kniphofia Lemon Queen, Dracophyllum virginicum album, Montbretia Solfaterre, a compact-growing species of Solidago from the Rocky Mountains, with densely-set flower-spikes; Spiræa Anthony Waterer, with bright carmine-coloured flower-heads; Hemerocallis disticha flore-pleno, a showy flower (Silver Flora Medal).

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, showed a collection of Rose blooms, principally consisting of Teas, which were shown lavishly in large bunches. Other than Teas, we noted Paul's Cheshunt Scarlet, but really a dark crimson flower; and Grüss an Teplitz (Silver Banksian Medal).

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, showed 100 Codiæums in 48's in much variety. New varieties were Elysian, spiral leaved, with yellow and green tints; Adonis, a somewhat similar leaf, less compact in habit, and having more colour; Minerva, a neat and spiral-leaved variety, of green and yellow tints; Her Majesty, not very new, but worthy of notice still. These are excellent table plants. Most of the older varieties were represented in the collection (Silver-gilt Flora Medal).

Messrs. HUGH LOW & Co., Bush Hill Park, London, showed a small collection of Heaths, grown in 48's, interspersed with Statice and Adiantum. It was quite refreshing to observe these old favourites brought out, even though of diminutive size (Vote of Thanks).

Messrs. G. W. BELLGROVE & Co., The Nurseries, 81, Fulham Palace Road, Hammersmith, showed a floor group of many well-grown plants of Codiæums in variety; they had evidently been rapidly grown, and were slender and destitute of branches, but well adapted for certain decorative purposes (Bronze Banksian Medal).

Mr. AMOS PERRY, Hardy Plant Farm, Winchmore Hill, N., showed a small select collection of hardy perennial plants, mostly as cut blooms. We noted Silene virginica, the plant of slender growth, about 1 foot high, and surmounted with a corymb of scarlet coloured flowers; Buddleia variabilis, pale blue flowers on long spikes; Artemisia sericea, not in flower, of a grey colour throughout; Artemisia stelleriana; Lychnis Haageana; Bocconia Thunbergi; Mulgedium Bourgai, with flowers of a light blue tint; Linum luteum, Spiræa filipendula flore-plena, the fine Campanula Mariesii, and the singular-looking Sedum kamschaticum fol. var. in flower; Lobelia Gerardi Violet Queen, with rich violet-purple flowers, and L. G. corallina, Phloxes, Heleniums, Helianthus, Monarda, Geum, and Yucca, formed the greater moiety of the remainder (Vote of Thanks).

Messrs. BARR & SONS, King Street, Covent Garden, W.C., showed a miscellaneous group of hardy herbaceous perennial plants, among which were comprised, Phloxes, Henry Murger, blush, with a crimson eye; Flambeau, a lively crimson; Epopee, rosy-carmine; Pentstemon General Gallienes, a fine deep crimson flower, having a white throat; P. Emperor, scarlet; P. Acme, crimson, with a white throat; P. Blushing Bride, of a novel colour, and others; Watsonia Ardoinei, a pure white flower and tall spike; Miscanthus sinensis, Zebrina striata (Cape Eulalia), the leaves banded with white, distinct and useful; Pyrethrum Hamlet, a single flowered variety, with rays of a soft pink tint; and a great number of Violas and Pansies fronted the group (Vote of Thanks).

Messrs. J. VEITCH & SONS, Chelsea, Feltham, &c., showed a bush growing in a tub of Eucryphia pinnatifolia smothered with flowers, a very effective plant, as shown; Rose Myra = R. Wichuriana, and Crimson Rambler, the colour old pink, and flowers very double; Buddleia variabilis var. Veitchiana, possessing flowers of a tint of lilac, which are set densely on spikes 9 inches long; Sambucus canadensis, having dense, very large corymbs of flowers of a whitish-green tint; and Senecio clivorum, of which we hope to give an illustration shortly.

Mrs. DAVIES EVANS, Highmead, Llangollen (gr., Mr. Fox), showed a capital collection of Water Lilies, inclusive of most of the modern varieties both single and double flowered (Bronze Flora Medal).

C. C. PAINE, Esq., Hillfield, Haverstock Hill (gr., Mr. B. Vyse), showed a leaf and ripe fruits of Monstera deliciosa, the latter in a ripe state (Vote of Thanks).

Messrs. W. BULL & SONS, 536, King's Road, Chelsea, showed a small, select batch of Caladiums, Lilium auratum virginale (Wittei), white segments, having a narrow central band of yellow. A few Carnation blooms and plants were shown.

R. WALLACE & Co., Colchester, showed Lilium Kewense = L. Brownii chloraster × L. Henryi, L. Bakeriana var. Lowi, and L. Alexandræ; the last two being white flowered, and the first one cream-coloured.

Mr. G. WYTHES, gr., Syon House, Brentford, showed Campanula pyramidalis grandiflora, one blue and the other white flowered.

Mr. H. SHOESMITH brought from Woking a choice set of Cactus Dahlias, the earliest of the present season, yet in spite of this the flowers were good and quite of a high standard of excellence. The following were the most notable, Lord Kitchener, rich maroon, with rather darker base to the long upturned florets, a showy kind, and not too crowded in the head; Primrose Queen, medium-size flower, of a soft lemon or primrose-yellow shade; Elegance, distinct buff, shaded red; Lord Milner, rich carmine self, very effective; H. W. Sillem, orange-salmon, shaded with buff, a very handsome kind; Apricot, orange-apricot tone, with a shading of buff at the base, an excellent novelty; F. A. Wellesley, crimson-carmine, outer petals suffused with ruby-red, a bright and effective flower of excellent form (this kind received the Award of Merit).

The Gladioli from Messrs. KELWAY & SONS, Langport, was one of this firm's usual contributions of this famous summer flower. We believe, however, we have seen finer spikes and better flowers staged by the firm; therefore, we incline to regard the weather experienced of late as having been unfavourable to their development. All the same, one entire side of a table was filled with a numerous array of kinds, equally varied in their colour and markings. We make no pretence at giving a list of the kinds, but a few select ones are as follows:—

Silver Stick, palest flesh with salmon tint, and dark lines on throat; Langport Wonder, fine scarlet, with reddish flame; Miss Monro, white, freckled purple, very fine spike; Major Dickie, crimson-scarlet self; Countess Amy, palest flesh and salmon; Vivid, a rich crimson self, showy; Richard Milner, yellow, with crimson markings on the lower petals; Lord Curzon, scarlet, with dark flame sweeping the outer parts of the upper petals; Colonel Morgan, deep salmon, with crimson on the lower portion of the flower; Edward VII., large scarlet flowers, freckled with yellow in the lower half; Senora, dusky-ruby and crimson, one of the darkest in the collection; Hannibal, salmony-yellow, with crimson flakes; Lord Roberts, fine salmon-rose; Baden Powell, very large flower, colour salmon, with white throat; Lord Milner, crimson, flamed on the outer parts, and with yellow throat. In addition, two of the more striking received the Award of Merit, and will be found under Awards. A Silver-gilt Flora Medal was awarded.

The only other group of florist's flowers on this occasion consisted of Hollyhocks, from Messrs. WEBB & BRAND, Saffron Walden, who staged a fine lot of spikes as grown, together with some twelve dozen fine blooms arranged on boards. Of these latter a line of each variety was shown, the colours embracing flesh, rose, pink, yellow, buff, maroon, and other shades. The towering spikes were most effective, and indeed in these we saw representatives, as it were, of the whole collection; proving beyond doubt that even if a few select flowers receive distinctive names, there is ample in the seedlings of such a strain as that of the Messrs. WEBB & BRAND to satisfy even the most fastidious, or the greatest enthusiast of Hollyhock culture (Silver Banksian Medal).

Awards.

AWARD OF MERIT.

Kniphofia "Rufus."—Flower-head yellow and scarlet, showy, and rather short. Shown by Mr. M. PRITCHARD, Christchurch.

Carnation The Shah.—A yellow-ground flower, striped crimson. Shown by MARTIN SMITH, Esq., Hayes, Kent (gr., Mr. C. Blick).

Cordyline indivisa var. B. Elder.—The leaves, as in the type, differing only in their brownish-green tint. Shown by P. ELDER, Esq., Forbes House, Ham, S.W.

Caladium Gireoud.—The leaf having a white ground, dotted over with crimson and green. It is novel in this respect. Shown by Messrs. W. BULL & SONS, 536, King's Road, Chelsea.

Senecio clivorum, from Central China.—A vigorous growing, caulescent herbaceous perennial, with roundish peltate leaves, orange-coloured heads of flowers 3 inches in diameter, the anthers black, and standing on a yellow disc. Shown by Messrs. JAMES VEITCH & SONS, Chelsea.

Montbretia George Davison. — Pure orange-coloured largish flowers, long flower-spikes. Shown by Mr. M. PRITCHARD, Christchurch.

Gladiolus Coronation. — A striking and beautiful novelty, the flowers large and well formed. The colour is white, suffused with delicate pink in the upper parts of the flower, and in the lower petals a blotch of intense crimson velvet nearly covers this portion. The contrast is as remarkable as it is striking. Shown by Messrs. KELWAY AND SONS, Langport, Somerset.

Gladiolus Empire. — Another fine break in these flowers, betraying a possible mingling of some of the Lemoinei hybrids with Gandavensis. The predominant colour is rose and flesh in the upper half, while a gold blotch and purplish-crimson pervades the lower section of this very striking flower. Shown by Messrs. KELWAY AND SONS, Langport.

Cactus Dahlia, F. A. Wellesley.—Fine shaped flower of a crimson-carmine hue; outer petals suffused with ruby-red, a bright and effective flower of excellent form. Shown by Mr. H. SHOESMITH, Nurseryman, Woking.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the Chair; and Messrs. Jas. O'Brien (Hon. Sec.), J. Gurney Fowler, De B. Crawshay, W. Cobb, F. A. Rehder, E. Hill, W. H. White, F. W. Ashton, H. T. Pitt, W. Thompson, and H. Little.

Again there was but a small display of Orchids, although seventeen subjects were entered to go before the Committee.

Sir Trevor Lawrence, Bart., Burford (gr., Mr. W. H. White), staged a small group made up of Cattleya × Parthenia rosea, a fine specimen of Odontoglossum aspidorhinum, the fine old Houlletia Brocklehurstiana, Sarcanthus appendiculatus, and a singular Thrixspermum (?), with dense heads of reddish flowers, globular in the bud state.

W. M. Appleton, Esq, Tyn-y-Coed, Weston-super-Mare, showed Cypripedium × Julia (Lawrenceanum × exul), a large greenish-white flower tinged with rose, and bearing lines and spots of chocolate colour on the upper sepal; C. × Phœbe (philippinense × bellatulum), cream-white, with purple-spotted lines on the upper sepal and petals; C. × Eos (niveum × Charlesworthi) and C. × Tautzianum lepidum, both white tinged with rose; and C. × Rolfei (bellatulum × Rothschildianum), cream-white marked with dark purple.

Norman C. Cookson, Esq., Oakwood, Wylam (gr., Mr. H. J. Chapman), showed Cypripedium × vexillo-Io, a pretty cross between C. × vexillarium and C. × Io, the flowers partaking most of the first-named. Upper sepal white with dark purplish lines, the base greenish, and the sides tinged with purple. Petals curved downward and outward, white at the base and tinged with rose on the blade, and having eight or nine dotted lines of dark purple. Staminode yellow, with dark green veining; lip greenish, tinged with red.

Messrs. Sander & Sons, St. Albans, staged a small group, in which were a fine variety of Lælio-Cattleya × callistoglossa, L.-C. × bletchleyensis, a peculiar form of Lælio-Cattleya × elegans, with whitish sepals and petals delicately veined with rose, and with ruby-red front to the lip; Cypripedium × Wm. Mathews (Mastersianum × Lawrenceanum), a good bold flower; C. × Mars (Io grande × Rothschildianum), with fine dark spotting on the long green petals; and Lælio-Cattleya × Magnei var. Mrs. E. Rogerson (L. tenebrosa × C. granulosa Dubuysoniana), a very distinct hybrid, with the long sepals and petals tinged with purple, and the broad front lobe of the lip extended on the well-defined middle portion, and of a rich, dark claret-crimson colour.

Sir J. Miller, Bart., Manderston, Duns, N.B. (gr., Mr. J. Hamilton), sent a pretty Lælio-Cattleya × (? L. tenebrosa × L.-C. × elegans), with bronzy sepals and petals, and bright purple front to the lip.

H. Whateley, Esq., Kenilworth, showed Odontoglossum crispum Blanche Whateley, white, with one very large purplish blotch in each sepal, and similar purple blotches in the petals. The plant was very small, and promises well.

R. I. Measures, Esq., Cambridge Lodge, Camberwell (gr., Mr. Smith), sent a pretty, nearly white hybrid, somewhat resembling Cattleya × Parthenia, but with a broader labellum.

Messrs. Hugh Low & Co., Bush Hill Park, showed a finely-coloured Cattleya Eldorado splendens; a very fine Lælio-Cattleya × elegans, Lælia majalis, Cypripedium × Naudi, and C. niveum.

Awards.

First-class Certificate.

Cattleya × Lady Ingram, "Westfield variety" (Eldorado × Dowiana aurea), from Francis Wellesley, Esq., Westfield, Woking. A very fine hybrid, with large and exquisitely tinted flowers of delightful fragrance. The sepals and petals are blush-white, with a slight indication of the yellow of C. aurea, the finely-formed broad labellum is of a rich orange tint at the base and central portion, where it changes at the sides to chrome-yellow. The edges of the side lobes of the lip and its front are coloured purplish-rose, changing to blush-white at the fringed margin. The base of the lip is reddish, on which the golden veining is traced, and the whole flower, as well as being of fine proportions and very showy, has the colouring delicately blended.

Award of Merit.

Lælio-Cattleya × *Ingrami "Rosslyn variety"* (L. Dayana × C. Dowiana aurea), from H. T. Pitt, Esq., Rosslyn Stamford Hill (gr., Mr. Thurgood).—A fine advance on the original form, the flowers being of extraordinary size, considering the dwarf habit of the plant. Sepals and petals bright rose; lip dark maroon-purple, its surface having the appearance of velvet. The golden veining of Cattleya aurea appeared indistinctly at the base of the lip, but until examined, the labellum appeared of an uniform dark maroon-purple.

Botanical Certificate.

Houlletia Brocklehurstiana, from Sir Trevor Lawrence, Bart. (gr., Mr. W. H. White).—A very old Brazilian species, first flowered in the collection of Mr. Brocklehurst, near Macclesfield, in 1841. Flowers nearly 3 inches across, yellowish, closely marked with purplish-red.

Cultural [Commendation.

To *Sarcanthus appendiculatus*, from Sir Trevor Lawrence, Bart.—A pretty little species, with terete leaves, and spikes of yellowish-white flowers, striped with brown.

To Sir Trevor Lawrence, Bart. (gr., Mr. White), for a fine specimen of the elegant Odontoglossum aspidorhinum, with twenty-four spikes of its pretty flowers, with yellow sepals and petals marked with brown, and conspicuous white labellum spotted with purple. The sprays of flowers arrange themselves all round the plant, and make it very attractive.

Fruit and Vegetable Committee.

Present: H. Balderson, Esq., in the chair; and Messrs. J. Cheal, H. Esling, A. Dean, H. J. Wright, F. Q. Lane, G. Kelf, Jacques, and J. H. Veitch.

If the attendance of members was limited, so too were the exhibits. The most important was a fine collection of Plum trees in pots, exhibited by Messrs. Jas. Veitch & Sons, Chelsea, all finely fruited, and ranging from 6 feet to 8 feet in height. The varieties included, Golden and Early Transparent, Grand Duke, Jefferson, Coe's Golden Drop, Kirkes, Bryanstone Gage, Deniston's Superb, Reine Claude de Comte Hathem, and others. In addition there was a fine specimen of the Japanese Wineberry, Rubus phœnicolasius, full of fruit (Silver-gilt Knightian Medal).

Mr. G. Kelf, gr. to Miss Adamson, North Lodge, Regent's Park, sent a dish of fine McLaughlin's Gage Plums (Vote of Thanks).

Dr. Bonavia, Westwood, Worthing, sent several pretty round green and white fruits of a Melon from Lucknow, named Chitta Khabrosa. Those which were tasted were found to be quite sweet, but wanting in flavour.

G. C. Paine, Esq., Hillfield, Haverstock Hill (gr., Mr. Vyse), had two fine fruits of Monstera deliciosa (Vote of Thanks).

A few French Crab Apples came from Mr. T. Parkinson, Abergwili, South Wales.

Mr. G. Wythes, gr. to the Duke of Northumberland, Syon House, Brentford, sent fruits of a green roundish Vegetable-Marrow Wythes' Prolific. It was regarded as similar to Perfection Marrow, and it was desired the variety be tried at Chiswick next year.

A handsome, scarlet-flesh Melon, from Mr. A. Johnson, Duffield Gardens, Stoke Pogis, Slough, was asked to be seen again; the outer flesh being yet rather hard, though the flavour was fairly good.

A Vote of Thanks was given to W. W. Shuter, Esq., Belsize Grove, Hampstead (gr., Mr. Armstrong), for eighteen nice Peaches, unnamed, grown near London.

Royal Horticultural, Chiswick.

August 14.—A meeting of the Fruit and Vegetable Committee was held in these Gardens on the above date. Present: Mr. A. Dean, in the chair; and Messrs. J. Smith, J. Willard, W. Bates, S. Mortimer, G. Wythes, H. Markham, G. Woodward, H. J. Wright, G. Reynolds, and W. Pope.

An extensive trial of Potatos, mostly new, was inspected. Many of the earlier varieties had suffered from late frosts, which were exceptionally sharp, and from the effects of which recovery was not at all complete. In other cases, late strong growers were unusually strong and spreading, because of the frequent rains. Happily disease was not materially in evidence. Of a large number lifted, ten varieties were selected for the cooking test, two being old standard varieties. Of these, ultimately two were given Awards of Merit, viz., New Century, a first early handsome white kidney, a capital cropper, and of excellent table quality, from Sharpe & Co., of Sleaford; and to Northumbria, a very handsome and prolific white round, also of good table quality, raised from Syon House Prolific × Sutton's Seedling, from Mr. G. Wythes, gr., Syon House.

The following varieties, found to be as yet immature, but promising, are to be tested at a later date:—Alderman (Sharpe), Crampton (Brydon), Earl Roberts (Bradley), and New Seedling Round, which needs a better appellation.

The Committee advised that the Council be invited to organise as vegetable trials next year one of dwarf and climbing Kidney Beans, and one of Vegetable-Marrows, of which products there is now a great variety in commerce, yet little known. It is hoped that in sending varieties for these trials great self-denial will be exercised, as only the best are desired.

Mr. S. T. Wright mentioned that Leopold de Rothschild, Esq., had kindly consented to allow the Committees' cricket match to be played in Gunnersbury Park on September 3 next. It was agreed that only *bonâ fide* members should be invited to play, and Mr. G. Woodward consented, in Mr. Poupart's absence, to act as Fruit Team captain.

CARDIFF GARDENERS' ASSOCIATION.

August 11.—Sixty members availed themselves of the outing to Highbury, Birmingham (the residence of the Right Hon. Joseph Chamberlain, M.P.), on Monday, August 11 last. The party left Cardiff at 6.30 A.M., reaching Ye Old Royal Hotel, where an excellent dinner was in readiness at 12.30.

A move was made at 2 P.M. by car for Highbury, where Messrs. Deacon and Mackay met the party at the entrance, and conducted it throughout the various departments under their charge. Leaving Birmingham at 11.30 P.M., Cardiff was reached at 4.30 A.M. Tuesday, the members having spent one of the most enjoyable outings the Association has ever held. *J. J.*

DUMFRIES AND GALLOWAY HORTICULTURAL.

August 15, 16.—The Dumfries and Galloway Horticultural Society, which claims to have held the first flower show in Great Britain, in 1812, held its annual show in Castledykes Park, Dumfries, on the above dates, in favourable weather. The formal opening ceremony was gracefully performed by Mrs. Glover, wife of the Provost of Dumfries, who was introduced in an eloquent speech by Sir James Crichton-Browne.

The entries were numerically stronger than last year, and considering the late season, the quality in all classes compared very favourably with former shows. The chief increase was in the florists' class.

The championship of the show went to Mr. J. M. Stewart, gr. to J. G. Neilson, Esq., Mollance, near Castle Douglas, who in the open class won the handsome silver Challenge Cup presented by the Dumfries Town Council, with a splendid table of Codiæums (Crotons), and other stove plants, beating Messrs. J. Service & Sons, Maxwelltown, and Mr. J. Houston, Crichton Royal Institution (last year's Cup winner), who were 2nd and 3rd respectively.

Mr. J. Kennedy, Greenbrae, Dumfries, carried off the prize for an effectively arranged circular group of plants; and Messrs. T. Kennedy & Co., Dumfries, that for Conifers.

Messrs. D. & W. Croll, Dundee, were 1st for both twenty-four Rose blooms and eighteen Tea Roses, but were run very closely by Messrs. Palmer & Sons, Annan, in the former class. Mr. John Learmont, Larchfield, was prize-winner for Sweet Peas.

The Misses Rutherford, Crichton House, took 1st and 2nd prizes in the florists' class for their table decorations of cut flowers and foliage. The bouquets and baskets of flowers in this class were exceedingly good.

The gardeners' class was a strong one throughout, fruit being very creditable. Black Hamburgh Grapes were very fine, as were also Peaches and Nectarines. Vegetables, as a rule, were of excellent quality. The principal prize-takers in this class were Mr. J. M. Stewart (gr., Mollance); Mr. R. Grigor, gr. to M. Balmaine, Esq., Woodland; Mr. J. Duff, gr. to Colonel Gordon, Threave; Mr. J. Houston, Crichton Royal Institution; and Mr. Jas. Henderson, gr. to T. D. Minto, Esq., Elmbank.

The following firms had non-competitive stands on exhibition:—Messrs. T. Kennedy & Co., Dumfries, foliage plants and cut flowers; Messrs. Middleton & Sons, Dumfries, herbaceous plants; Messrs. Thomas Smith & Sons, Stranraer, and Messrs. Palmer & Sons Annan, Roses.

Much of the success of the show was due to the able manner in which Mr. R. G. Mann, *Courier* Office Dumfries discharged the duties of Secretary. *R. J. A.*

NATIONAL CARNATION & PICOTEE.

(Northern Section.)

AUGUST 16.—This Society, founded in 1874, held its annual exhibition at the Royal Botanical Society's Gardens, Old Trafford, Manchester, on the above date, and being favoured with a fine day it proved a great success, being visited by large numbers of ladies and gentlemen, who showed their interest in the exhibits by making notes for their future guidance.

The cold unfavourable season we are passing through has had its effect upon this and other kindred societies, the blooms do not open so freely, nor will the bulk of Carnations in the north be in bloom for another fortnight. The exhibition just held is thirteen days later than last year; exhibitors have laboured under difficulties unknown to the outside public, and their compensation will be a longer Carnation season.

The premier honours of the Society were awarded to Mr. T. LORD, of Todmorden, for white-ground Carnation Master Fred, C.B., and for white-ground Picotee Lady Louisa, heavy rose edge, as being the two best flowers in their separate sections. Sportsman, S.F., and Gordon Lewis, P.F., were shown to such perfection that they claimed the whole five prizes allotted to each section.

The Society's Certificate was awarded to the Rev. C. A. GOTTWALTZ for a coral-pink self, John Pope.

Twelve White Ground Carnations, Bizarres, and Flakes, dissimilar.—1st, Mr. T. LORD, Todmorden, with Master Fred, C.B.; Gordon Lewis, P.F.; Robert Lord, S.B.; J. S. Hedderley, C.B.; Admiral Curzon, S.B.; Sportsman, S.F.; W. Skirving, P.P.B.; Mrs. T. Lord, R.F.; J. D. Hextall, C.B.; J. W. Bentley, C.B.; Mrs. Shaw, R.F.; Robert Houlgrave, S.B. 2nd, Messrs. PEMBERTON & SON, Walsall, with Robert Houlgrave, S.B.; George Melville, P.F.; Sportsman, S.F.; Merton, R.F.; J. W. Bentley, C.B.; Robert Lord, S.B.; Arline, P.P.B.; Gordon Lewis, P.F.; Charles Henwood, P.F.; W. Skirving, P.P.B.; Flamingo, S.F., and Admiral Curzon, S.B. 3rd, Messrs. ARTINDALE & SON, Sheffield, with Thalia, S.F.; Gordon Lewis, P.F.; Flamingo, S.F.; Lord Rothschild, R.F.; Wm. Dean, S.F.; J. S. Hedderley, &c.

Six White Ground Carnations, dissimilar.—1st, F. W GOODFELLOW, Walsall, with Sportsman, S.F.; J. S. Hedderley, C.B.; Charles Henwood, P.F.; Robert Houlgrave, S.B.; Miss C. Graham, S.F., and Merton, R.F. 2nd, E. KENYON, Ramsbottom, with Mrs. May, R.F.; Admiral Curzon, S.B.; Seedling; Dan Godfrey, S.F.; Mrs. T. Lord, R.F., and Robert Houlgrave, S.B. 3rd, J. BROCKLEHURST, Moston, with Merton, S.F.; Robert Houlgrave, S.F.; Lord Rothschild, R.F.; Admiral Curzon, S.B., &c.

Twelve White Ground Picotees, dissimilar.—1st, Mr. T. LORD, Todmorden, with Mrs. W. Crosbie, Ganymede, Little Phil, Fanny Tett, Amy Robsart, Lady Louisa, Fortrose, Heart's Delight, Brunette, Favourite, Mrs. Sharp, and Thomas William; 2nd, A. R. BROWN, Birmingham, with Ganymede, Favourite, Miriam, Louie, Aggie, Mrs. Gorton, W. H. Johnson, Pride of Leyton, Morna, Elsia May, &c.; 3rd, C. F. THURSTON, Wolverhampton, with Brunette, Fortrose, Grace Darling, Favourite, Amy Robsart, Thomas William, Polly. Brazil, Little Phil, &c.

Six white ground Picotees, dissimilar.—1st, F. W. GOODFELLOW, Walsall, with Miriam, W. H. Johnson, Thomas William, Mrs. Openshaw, Brunette, Lavinia; 2nd, W. CURBSTONE, Heaton Moor, with Brunette, Esther, Mrs. Crosbie, Little Phil, Terlina, Favourite; 3rd, Rev. C. A. GOTTWALTZ, Droitwich, with W. H. Johnson, Lucy, Myra, Molly, Aggie, Eileen.

Twelve selfs, not more than two flowers of one variety.—1st, A. R. BROWN, with Teddy Galton, Fredegond, Germania, Joan of Arc, The Sirdar, Comet, Prior; 2nd, T. LORD, with Cecilia, Exile, Seagull, Her Grace, Mrs. T. Hellewell, Uncle Tom, Phaon, Miss Audrey Campbell, Mrs. E. Hambro, &c.; 3rd, Messrs. ARTINDALE & SONS, with Roseleigh Gem, Midas, Nautch Girl, Lady Hindlip, Wild Swan, Midas, &c.

Six Selfs only, not more than two flowers of one variety.—1st, Rev. C. A. GOTTWALTZ, White Wings, John Pope, Benbow, Bishop Ilsley, Mrs. E. Hambro, John Pope; 2nd, Mr. CHATWIN, Birmingham, Ensign, Bomba, Comet, Conquest, The Laird; 3rd, E. KENYON, with Exile, Lady Hermione, Exile, Mrs. James Douglas, and Dick Donovan.

Twelve Fancy or Yellow-ground Carnations and Picotees, with not more than two flowers of any one variety.—1st, A. R. BROWN, with General French, Pagan, Voltaire, Marconi, Monarch, Daniel Defoe, Hidalgo, Oakley Heroine, Radiance, C. B. Thomson, and Charles Martel 2nd, C. F. THURSTON, with Perseus, Voltaire, Argosy, Lady Bristol, Czarina, Daniel Defoe, Helios, Lauzan Euryalus, Hidalgo, and Alexandra. 3rd, Mr. CHATWIN, with Argosy, Jess, Euryalus, Oakley, Amphion, Voltaire, Queen Bess, and Brodick Monarch.

Six Fancy or Yellow Ground Carnations and Picotees, with not more than two flowers of any one variety—1st, W. PEMBERTON & SON, with Hidalgo (sport), Voltaire, Gertrude Alcmons, Hidalgo Lauzan; 2nd, Rev. C. A GOTTWALTZ, with Goldy, Crown Prince, Marie Louise, Twilight Radiance, W. G. Gottwaltz.

Single flowers for the best Scarlet Bizarre (five prizes).—1st, Mr. GOODFELLOW, Robert Houlgrave; 2nd, PEMBERTON & SON, Robert Houlgrave; 3rd, T. LORD, Admiral Curzon.

For the best Crimson Bizarre.—1st, T. LORD, with Master Fred; 2nd, T. LORD, with Master Fred; 3rd, Mr. GOODFELLOW, with J. S. Hedderley.

For the best Pink and Purple Bizarre.—1st, T. LORD, with Sarah Payne; 2nd, A. R. BROWN, with C. F. Thurston; 3rd, T. LORD, with Sarah Payne.

For the best Scarlet Flake.—1st, F. W. GOODFELLOW, with Sportsman; 2nd, T. LORD, with Sportsman; 3rd, F. W. GOODFELLOW, with Sportsman.

For the best Rose Flake.—1st, T. LORD, Mrs. T. Lord; 2nd, C. F. THURSTON, Mrs. T. Lord; 3rd, ARTINDALE & SON, Thalia.

For the best Purple Flake.—1st, T. LORD, with Gordon Lewis; 2nd, T. LORD, with Gordon Lewis; 3rd, PEMBERTON & SON, with Gordon Lewis.

For the best Heavy Edged Red Picotee.—1st, T. LORD, with John Smith; 2nd, T. LORD, with Brunette; 3rd, A. R. BROWN, with Ganymede.

For the best Light Edge Red Picotee.—1st, F. W. GOODFELLOW, with Thomas William; 2nd, PEMBERTON & SON, with Thomas William; 3rd, F. W. GOODFELLOW, with Mrs. Gorton.

For the best Heavy Edged Purple Picotee.—1st, F. W. GOODFELLOW, with Mrs. Openshaw; 2nd, Mr. T. LORD, with Fanny Tett; 3rd, F. W. GOODDELLOW, with Mrs. Openshaw.

For the best Light Edge Purple Picotee.—1st, F. W. GOODFELLOW, with Lavinia; 2nd, A. R. BROWN, with Dolly; 3rd, E. KENYON, with Harry Kenyon.

For the best Heavy Edged Rose Salmon or Scarlet Picotee.—1st, Mr. LORD, with Little Phil; 2nd, F. W. GOODFELLOW, with Mrs. Payne; 3rd, T. LORD, with Mrs. Beswick.

For the best light edged rose, Salmon, or Scarlet Picotee.—1st and 2nd, T. LORD, with Fortrose; 3rd, E. KENYON, with Seedling. *H. Prescott, Sec.*

ALFRETON FLOWER SHOW.

THE annual exhibition promoted by the Alfreton Floral and Horticultural Society was held last week in Alfreton Park. The produce was far in advance of anything seen at previous shows this season.

Mr. J. Ward, gr. to Mr. T. H. OAKES, of Riddings House, secured the 1st prize for a group of plants staged for effect. Mr. Ward's group consisted of some lovely specimens of Orchids, Crotons, Codiæums, and light grasses, harmoniously arranged.

BISHOP'S STORTFORD FLOWER SHOW.

THE thirty-third annual exhibition was held in the Grange grounds, kindly lent by T. BAKER, Esq., for this important event.

At few horticultural shows are cut flowers and floral decorations generally made so great a feature as at Bishop's Stortford, and when no fewer than five ladies competed in the class for dinner-table decoration, it will be understood how large an array of material was used, and how great the area needed to display the tables. There are other special classes for ladies and amateurs for designs for mantelpieces, and baskets of flowers for placing on mantelboards and in fireplaces. Here there were eleven competitors, and some tasteful work was produced.

One of the most effective arrangements was made of Gaillardias and Campanulas. The highest prize for a decorated table was won by Mrs. G. OSMOND, Bishop's Stortford, for an arrangement of Ivy-leaved Pelargoniums and Smilax; Miss M. DIXON, of Harlow, being 2nd, in her case Sweet Peas being the flowers employed.

For fireplaces and mantelboards the 1st prize was taken by Miss GLADYS GWYNN; Miss M. BLYTH being a close 2nd. The best arranged basket of flowers was that from Miss E. SPENCER, of Clavering Hall; Mrs. LIVESEY, Stanstead, being 2nd. For large vases of cut flowers, Mrs. LIVESEY won with one filled with Hollyhocks and white Campanulas. For hand bouquets, Mrs. KNIGHT and Mrs. SYMS, Harlow, were the winners of the 1st and 2nd prizes, Carnations being the flowers mostly employed.

In the gardeners' classes, Mr. A. Jeffries, gr. to J. BALFOUR, Esq., Moor Hall, Harlow, Essex; Mr. J. Richardson, gr. to Sir J. BLYTH, Bart.; and Mr. F. Reynolds, gr. to Mrs. A. GOLD, secured many of the leading prizes in fruit, cut flowers, and vegetables.

For the best group of plants arranged with an idea to effect, Mr. A. JEFFRIES was 1st with a group consisting of very light material, the only fault being its shape; and Mr. GOLD was 2nd. In the plant classes, Mr. GOLD was an easy 1st; with Mr. G. Beech, gr. to Mr. J. BARKER, as a close 2nd.

Mr. W. SMITH had splendid zonal Pelargoniums; Mrs A. TAYLOR had the finest group of tuberous-rooted Begonias. Roses and Asters were weak in the cut flower classes.

For hardy perennial flowers, twelve bunches, in the open classes, Messrs. PAUL & SON, Cheshunt, had a splendid collection, and was placed 1st; whilst Mr. H. A. HARE was 2nd.

In the other class, Mr. G. BEECH had a grand lot of flowers. Col. A. HOUBLON had the best Madame Desgranges Chrysanthemums; and Mr. BAKER the best Dahlias.

Fruit was well done. Col. H. HOUBLON (gr., Mr. Harrison) had the best collection, and Mr. T. BAKER was a close 2nd. The best black Grapes came from Col. HOUBLON'S garden, and that of Mr. J. BAILEY, M.P.; the best Muscat Grapes came from Messrs. GOSLING and BARKER. Mr. J. BALFOUR had the best green-fleshed Melon, and Mr. BARKER the best red-fleshed one. Peaches were good, Mr. BAILEY and Sir J. BLYTH having the best dishes.

Vegetables were very good, the best coming from the garden of J. BALFOUR, Esq., a very good collection. In the smaller classes the competition was very keen.

Among trade exhibits, mention should be made of the Dahlias of Mr. MORTIMER, of Rowledge, Farnham, his new Cactus varieties Mrs. C. Barker and Mrs. C. Bailey receiving First-class Certificates.

A good lot of Hollyhocks was staged by Messrs. WEBB & BRAND, of Saffron Walden; a pretty bank of hardy flowers by Messrs. PAUL, Cheshunt; and Gloxinias by Mr. W. P. NEAL, Bishop's Stortford.

Great credit is due to the hon. sec., Mr. W. SMITH, for his admirable management of everything connected with the show, and for the event going off without a hitch.

ENGLISH ARBORICULTURAL.

AUGUST 18.—The annual meeting of the above Society was held in the Manchester Hotel, Aldersgate St., on Monday evening, under the presidency of Dr. Somerville, of the Board of Agriculture. The names of sixty new members were submitted for the approval of the meeting, amongst whom were the Dukes of Northumberland and Bedford, bringing the total membership up to 634. In the essay competition, Medals were awarded to J. Wilson, D. A. Glen, F. Wood, &c., for specified subjects, while the President's prize of ten guineas for the greatest number of new members secured for the Society in 1902, was awarded to Mr. A. T. Gillanders. A special prize offered by Mr. H. J. Elwes, for the best essay on "The Natural Regeneration, or Raising of Woods from Seed," was awarded to Mr. A. C. Forbes.

The special feature of the evening was the presentation of a silver tea and coffee service, and a cheque for £60, to Mr. J. Davidson, the veteran Secretary and Treasurer of the society, which had been subscribed by 178 members and friends. Mr. Davidson has been Secretary of the society since its inception in 1881, and in returning thanks Mr. Davidson feelingly referred to the struggles and trials of the Society in its early stages, when for several years it was in a very critical condition. In connection with the coming excursion to France, five French forest officers were elected hon. members of the Society, while other changes were the retirement of Dr. Somerville from the presidency, and the election of Mr. G. Marshall of Godalming in his stead. The selection of a district for next year's excursion was referred to the Council, Wiltshire, Aberdeenshire, and Devonshire being suggested as suitable localities.

On Tuesday morning the members left Charing Cross, on their way to the forest district of Compiégne, near Paris, where the annual excursion is held this year, under the guidance of Professor Fisher, of Cooper's Hill.

CROYDON AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

AUGUST 19.—Lecturing to a good attendance of members of the above Society on the above date, Mr. E. LYNE, gr., Foxbury, Chislehurst, gave an able discourse on the cultivation of Strawberries, including forcing. In a lucid manner he described the methods followed at Foxbury, where these plants are largely and successfully grown. Mr. Lyne recommends but few varieties, and accords to Royal Sovereign the first place as an all-round variety. A novel manner of layering Strawberries was mentioned by the lecturer. A vote of thanks was accorded Mr. Lyne. *W. T.*

SHEFFIELD FLORAL AND HORTICULTURAL.

PROBABLY few societies have had such an uphill fight to establish itself as this one, and the committee must be congratulated upon their determined efforts to make headway. Whether it be that the monied people of Sheffield have grown so wedded to the grimy side, one cannot tell; but they certainly do not err on

the side of liberality in supporting an effort which must be for the benefit of the city. There are, however, some notable exceptions, which is proved by the handsome special prizes given by the Master Cutler (A. R. Ellis, Esq.), Ald. Roberts, M.P., and others. The city authorities have certainly failed to recognise the great good of exhibitions, such as that held on Thursday last, for by deferring their decision for about four months on an application for one of the public parks, they forced the society to seek other grounds, which were fortunately placed at its disposal. For three years the show has been held in unfavourable weather.

In the class for miscellaneous groups, 15 ft. by 10 ft., Mr. J. S. Sharpe took premier honours, with some splendid plants, including Cocos Weddeliana for his centre, several capital Codiæums, and Acers, the whole being light and graceful; 2nd, Messrs. Artindale & Son, with good plants, less charming in appearance; Mr. A. Sheridan, gr. to J. Bassett, Esq., Endcliffe, was a good 3rd, and is to be complimented on his efforts against such old exhibitors as those mentioned.

Mr. J. S. Sharpe was also 1st with three flowering plants, 1st in foliage, 1st in specimen foliage and 2nd in specimen flowering plants, and 1st in three table plants.

Mr. Pollard, gr. to F. Greenwood, Esq., was 2nd in three foliage and three flowering, 1st in the exotic Ferns, 1st in specimen flowering, and 2nd in specimen foliage plants.

There were four Fern groups in the gentlemens' gardeners' Class (Open), Mr. Pollard, of Abbeyfield, being 1st; and Mr. Brewer-Sharrow 2nd.

Cut flowers.—In the class for cut Roses there was a good competition, Messrs. Harkness & Co., Hitchin, taking 1st and Challenge Cup for twenty-four in eighteen varieties, with a superb lot; Mr. W. H. Frettingham, Beeston, was 2nd; and H. V. Machin, Worksop, 3rd.

For twelve blooms Messrs. Harkness were again 1st; Mr. Barrow, of Leicester, 2nd; and H. V. Machin 3rd.

H. V. Machin was also 1st for twelve and six blooms in the amateurs' class; Mr. J. W. Elliott, of Dore, being 2nd.

Messrs. Artindale were 1st for a shower bouquet; and Mr. S. W. Seagraves 2nd.

Dahlias have always been exceptionally fine at this show, but owing to the present backward season there was only one exhibit, that of Mr. S. W. Seagrave, for which a 1st prize was awarded.

Vegetables and Fruit, owing to the bad season, showed a great falling off, but some of splendid quality was exhibited. Fruit was fairly good, though Apples were small. Mr. Simmonds, gr. to C. Crookes, Esq., was 1st for both black and white Grapes.

Mr. Parkes, gr., Whittington Hall, Chesterfield, was 1st for Melons and Peaches. He also exhibited, not for competition, a new Melon, which he has named "A. R.," and for which a Certificate of Merit was awarded.

Messrs. Artindale exhibited a choice collection of fruits, Carnations, and floral designs, not for competition, each of which secured Awards of Merit.

A similar award was made to Mr. S. W. Seagrave for a splendid collection of Cactus Dahlias.

SHROPSHIRE HORTICULTURAL.

GREAT GRAPE COMPETITION.

August 20, 21.—The great annual shows of the Shropshire Horticultural Society have been so increasingly successful, that it is merely writing what we have written many times previously, when we describe the exhibition held at Shrewsbury on Wednesday and Thursday last, as a splendid display of British horticulture.

We do not go to Shrewsbury expecting to see many new plants, but at very few other exhibitions are there such splendid results of the first-class cultivation of plants, fruits, and vegetables. The reason is, that the Shropshire Horticultural Society is in a position to offer to successful exhibitors prizes of most unusual value.

Grapes.—Take, for instance, the class for twelve bunches of Grapes, in which the exhibitor of the best collection won £20 in money, and the honour of holding for the succeeding year the handsome Silver Cup of the value of £50, shown in our last number. In this class alone the Society expended a sum of £58, besides setting apart the Cup already mentioned and awarding a book of the value of eight guineas, presented by Messrs. W. Wood & Son, Ltd. It should be remembered that this lavish encouragement is offered absolutely for the effects of cultivation, and for the cultivation of the Grape-Vine, the principles of which were well understood by gardeners a generation ago. This is very remarkable, but we have no reason to regret the circumstance, for we believe it to be a fact that the premium thus put upon the highest cultivation of Grapes in special instances, has a good effect upon the general cultivation of the Vine throughout the country. How many of the hundreds of gardeners who visit the Shrewsbury Show can see the large-berried, beautifully formed, and exquisitely finished bunches of Grapes there shown, without receiving a stimulus to strive for as good results as are possible in their own cases.

At the same time it appears strange that although such rewards are offered for cultivation at Shrewsbury and other exhibitions, there is no instance in the country where such financial encouragement is awarded to the raiser or introducer of a new plant, fruit, or vegetable, that permanently enriches horticulture, and the public generally. Certificates and Awards of Merit are given freely, but it is left to the individual himself to gain financial recompense for his work, through the ordinary channels of trade.

As will be seen below, the Silver Cup for the Grapes will rest in Norfolk for the coming year, having been awarded to Lord Hastings' gardener, Mr. Shingler. The task of judging such a class as this, having 180 bunches, is a great one, but the judges were two thoroughly experienced cultivators, who have also had almost equal experience in judging. Messrs. W. Crump (Madresfield), and W. Speed (Penrhyn), had also a guide in the matter, it having been previously decided that the judging should be done upon the lines recommended in the Royal Horticultural Society's Code. Some of our Scotch friends who showed so thoroughly well on Wednesday, and English cultivators also, will doubtless do their very best next year to wrest the Cup from Mr. Shingler's hands.

Grapes generally were of very high quality indeed, the only fault that could possibly be found with them being want of colour, particularly in the Muscats, and this was due to the deficient sunshine. The highest praise may be given to fruit generally, whether in the collections or the single dishes.

Vegetables were also better than it was expected they would be, and were as good as they were numerous.

The Plant Classes were well sustained, and those for cut flowers also, though we must not lose sight of the fact that Dahlias have been seen better at Shrewsbury; and that Sweet Peas have suffered terribly from recent weather, Mr. H. Eckford being unable to show these flowers at all, owing to a storm on Sunday last.

The entries for the entire show were about 2500, being 250 more than last year.

There were seven marquees, as follows:—1, containing plants, 180 ft. by 50 ft., and 100 ft. in the bays; 2, containing plants, 140 ft. by 40 ft.; 3 and 4, cut flowers, &c., 130 ft. by 30 ft. each; 5, fruit, 290 ft. by 50 ft., and 80 ft. in bays; 6. vegetables, 130 ft. by 30 ft.; and 7, cottagers' exhibits, 160 ft. by 36 ft.

Although the weather has been very unsettled, the Society's usual good fortune did not forsake it during Wednesday, the weather being for the most part sunny and bright.

On Tuesday evening the principal tents, in which exhibitors had so much work to do, were illuminated with electric lights for as long a time as necessary. This is a new privilege, and furnishes another instance of the desire of Messrs. Adnitt and Naunton, the hon. secs., to do all that in them lies to assist exhibitors; and it is to the secretaries that the extraordinary success of the Shropshire Horticultural Society is chiefly due.

In estimating the good the Society has done, notice must not only be taken of the encouragement it has given horticulturists, but of the amount of money it has given to charitable purposes; and lastly, but not least, the visitor to the pretty little town is reminded that it was left to the Shropshire Horticultural Society, to erect a statue to the memory of Charles Darwin, in his native town.

GROUPS OF PLANTS ARRANGED FOR EFFECT.

The two large group classes were quite a feature in themselves. In that for flowering and foliage plants, as well as for foliage plants only, the competition was keen, fully maintaining the high character of groups at the Shrewsbury Show. Mr. J. Cypher, was pre-eminent in both of these classes.

Mixed Group.—In his 1st prize mixed group, the chief feature was its pleasing effect; there was not any approach to crowding. Light and choice Orchids with Nerines, were delightful; Calanthe veratrifolia did good service, so also did some small Ixoras; and at the front margin, dwarf plants of Lantana Drap d'Or, were employed with good effect as dot plants; some highly coloured Codiæums (Crotons), added both brilliance and lustre to the entire arrangement. The 2nd prize in this class was awarded in a keen competition to Mr. J. McDonald, gr., to G. H. Kenrich, Esq., Edgbaston, with perhaps a lighter arrangement, but what was gained in this way was lost in others. Fuchsia triphylla was employed at the base towards the back, and stood the exhibitor in good stead. Mr. Finch, of Coventry, who was placed 3rd, staged an effective group which in many shows would have easily won the premier position; lightness predominated here both in arrangement and in point of colour. There was, however, a suspicion of deficiency in the finish.

Mr. Cypher, in his premier group of foliage plants only studied effect from the point of richness in colouring; his Codiæums were of the richest possible colour, and the selection of varieties all that one could desire. Very fine in every respect were those of C. Reidi which were well furnished to the base, upon single stems and with huge leaves; light graceful Palms, and a choice assortment of highly coloured dwarf plants of Strobilanthes Dyerianus, Saxifraga sarmentosa tricolor, and plants of similar effect. The 2nd prize was awarded to Mr. G. Thompson, gr., to G. H. Turner, Esq, Derby, who had a very effective group, characterised by extra tall, well coloured Codiæums of light leafage. This group was excellent in many respects, but it lacked the *récherché* finish of his more successful colleague. The 3rd prize in this class was awarded to Mr. J. McDonald, whose arrangement was effective, but not so definite as desirable. Two other groups were staged, showing the popularity of this class.

In a class for smaller groups open to the county of Salop only, H. H. France Hayhurst, Esq., obtained 1st prize; and Mrs. Swan, Halston Hall (gr., Mr. C. Roberts), was 2nd.

SPECIMEN PLANTS.

Twenty plants, Stove and Greenhouse, not fewer than twelve in bloom, 1st prize to Mr. B. Cromwell, gr. to S. Sutton Limmis, Esq., Allerton, Liverpool, whose finest flowering examples were of Lapageria rosea, extra fine in colour; and L. r. alba, equally as good in quality, and both in profuse bloom; Ixora Williamsii, two excellent plants, well flowered, and fresh; and two also of I. coccinea superba, with another of I. macrothyrsa not well advanced; Stephanotis floribunda, well flowered; the weakest plant being one of Rhododendron Princess of Wales. The foliage plants here were a feature; dense bushes of Codiæums, well coloured, and in robust health, the finest being C. Williamsii, C. Mortfontainense, extra fine; C. Countess, and C. Queen Victoria; three fine specimens of Kentias, one of K. Belmoreana, and two of K. Forsteriana, at the back, completed a very fine group of specimen plants. Mr. J. Cypher, Queen's Road Nursery, Cheltenham, was a close 2nd, having an extra fine specimen of Erica Marnockiana, very fresh; one specially good Bougainvillea Cypheriana, an excellent Rondeletia speciosa major, one extra good Statice intermedia, and two smaller ones of the same variety, and of Statice profusa, with two good Allamanda nobilis. The foliage plants were three large Kentias, and four similar examples of Crotons, the best being C. Chelsoni and C. Warreni. The weak plant here was one of Phœnocoma prolifera Barnesii. These two groups constituted a remarkable feature in the centre of the large tent, and were the constant admiration of all plant lovers. Mr. Wm. Vause, Leamington Spa, was placed 3rd, with smaller, but well-grown plants, the best being a fine Phœnocoma prolifera Barnesii, Erica Marnockiana, and a good Ixora Williamsii, with three healthy Palms.

For a Specimen Plant in Flower, Mr. Vause was 1st, with a fairly good Erica æmula; and Mr. Cypher 2nd, with Statice intermedia, well coloured.

Groups of Small Plants in Pots, not more than 5 inches diameter, produced good competition. Mr. Lambert, gr. to Lord Harlech, Brogyntyn, was placed 1st, with well-selected, sturdy examples of Ixoras, Vincas, Allamandas, and Crotons; Mr. B. Cromwell followed with scarcely such a good selection, but well-grown plants.

For Table Plants, Mr. B. Cromwell was well to the fore with ideal subjects, well grown, the Crotons being extra good; Mr. A. Hall, gr. to J. C. Waterhouse, Esq., Prestbury, Macclesfield, followed with neat, pretty plants, of elegant outline.

For six Dracænas, Mr. Lambert was well to the front with sturdy, well-finished, and highly-coloured examples of the best kinds in cultivation.

Thirty Stove or Greenhouse Plants.—These were in pots not exceeding 10 inches in diameter. A very good collection of plants was shown by Lord Harlech. He had Dipladenia amabilis, Ixora Pilgrimi, Clerodendron Balfouri, C. fallax, in capital condition, and a number of other species. 2nd, T. Sutton Timmis, Esq., Allerton, Liverpool (gr., Mr. Cromwell), who had a nice Lapageria, a Gloriosa superba, Crassula coccinea, &c

3rd, Mr. J. Cypher, Cheltenham, who made a feature of Ixoras.

Zonal Pelargoniums were shown in a class for six plants, and the winner of the 1st prize was R. Taylor, Esq., Abbey Foregate, Shrewsbury (gr., Mr. H. Clift). Fuchsias were not particularly noteworthy, but there were collections of small plants, also of various other flowering species.

Tuberous-Rooted Begonias were best from Messrs. B R. Davis & Sons, Yeovil Nurseries, who had six excellent specimens. Their double white Mrs. Reynolds and orange-scarlet W. Sparshot being particularly striking.

Caladiums were well shown, and the best were from T. Sutton Timmis, Esq., Cleveley, Allerton (gr., Mr. B. Cromwell).

Ferns included some capital specimens of Nephrolepis, Adiantum, Dicksonia, &c., from T. Sutton Timmis, Esq., Allerton, Liverpool; and Mrs. J. H. Slavey, Sunnicroft, Wellington.

FRUIT.—DESSERT TABLE.

The 1st class in the fruit section was one for a dessert table, decorated with plants, not exceeding 5 inches cut flowers and foliage. Not more than fifteen dishes of fruit were allowed, and each table measured 10 feet by 4 feet 6 inches. There were five exhibitors in this class, and the most successful was the Earl of Harrington, Elvaston Castle, Derby (gr., Mr. J. H. Goodacre), with a total of 121 points. He had four beautiful bunches of Grapes of choice varieties, excellent Triomphe de Vienne Pears, Elruge, and Lord Napier Nectarines, remarkable for deep colouring, Imperial Gage Plums, exceedingly large Brown Turkey Figs, Peaches Royal George and Nectarine, Ribston Pippin Apple, two excellent Melons, and a second dish of Pears. 2nd, Lady Henry Somerset (gr., Mr. G. Mullins), with a total of 111 points. In addition to Grapes, he had very good quality in some of the soft fruits, as Moorpark Apricots, Barrington and other Peaches, Stanwick Elruge and Dryden Nectarines, Figs, Melons, Cherries, &c. 3rd, Sir W. Pease, Bt., Gainsborough, who gained 109 points. 4th, The Hon. Mrs. Meynell Ingram, Temple Newsham, Leeds (gr., Mr. R. Dawes).

Champion Grape Class.

The conditions of the competition for the best collection of 12 bunches of Grapes, in four or more distinct varieties, but not more than four bunches of any one variety, including the following: "Each bunch to be judged on its individual merits, and points awarded as per Royal Horticultural Society's Code. The bunches to be staged on boards (singly, if possible), and the whole arranged on a table, space 8 feet by 4 feet 6 inches, in two tiers, 2 feet 3 inches in width. Neither size of bunch as such, nor flavour, to carry primary weight, but superior cultivation and finish, with the high-class quality of the respective varieties, will be considered of the greatest importance. Each collection to be decorated, flowering or foliage plants (in pots not exceeding 5 inches in diameter); also cut flowers or foliage in glass or ware, or loose, allowed at the exhibitor's discretion." Separate prizes were awarded for the decorations, and they were not considered when judging the Grapes.

The array of 108 bunches from nine exhibitors made a beautiful and imposing display, and there was the greatest interest shown in the competition, which eventually resulted in the triumph of Lord Hastings, Melton-Constable, Norfolk (gr., Mr. W. Shingler), who therefore won the handsome Silver Challenge Cup value 50 guineas, and illustrated in these pages (see August 9, p. 95), and a sum of £20.

The points awarded were as follows:—

		Max. No. of points.	Points obtained.
Bunch 1 ...	Gros Maroc...	9	9
,, 2 ...	Muscat of Alexandria ...	10	9
,, 3 ...	,, ,, ...	10	9
,, 4 ...	,, ,, ...	10	9
,, 5 ...	Gros Maroc...	10	8½
,, 6 ...	,, ,, ...	9	8½
,, 7 ...	Black Alicante	9	8¾
,, 8 ...	,, ,, ...	9	8¾
,, 9 ...	,, ,, ...	9	8¾
,, 10 ...	Alnwick Seedling ...	9	8¾
,, 11 ...	,, ,, ...	9	8¾
,, 12 ...	,, ,, ...	9	8¾
	Total	112	105½

The Gros Maroc were extremely good in size and colour; Black Alicante were unusually heavy, and of fine colour, the berries, as is customary in the variety as cultivated at Melton-Constable, encircling the wood shoot entirely; Alnwick Seedling were much of the same type, and grandly coloured; the Muscats were large, heavy bunches, but they were not perfectly finished. The 2nd prize of £12, and a copy of the *Encyclopædia Dictionary*, valued 8 guineas, given by Messrs. Wm. Wood & Son, was won by Messrs. D. & W. Buchanan, Kippen, Stirling, gaining 98½ points out of the 112 that were possible. The varieties in this exhibit were Alnwick Seedling, four bunches; Muscat of Alexandria, four bunches; Black Alicante, three bunches; and Black Hamburgh, one bunch. This was a very fine exhibit, and the Muscats were very long bunches, coloured rather better than most of those of this variety that were shown. Black Alicante, in two instances, were more remarkable for size of bunch than of berry, the third bunch having better berries; Alnwick Seedling was heavy, and one bunch of good form was awarded the maximum number of points The 3rd prize of £10 was won by Capt. A. Stirling, Keir, Dunblane, N.B., who won the great Grape class at Shrewsbury a year or two ago, when we published a photograph of Mr. Thos. Lunt, the clever gardener at Keir. On this occasion Mr. Lunt won 95½ points, and showed particularly well finished bunches of Black Hamburgh (2). Mrs. Pince (2), Alnwick Seedling (1), Cooper's Black (1), Muscat of Alexandria (4), and Madresfield Court (2). 4th, the Earl of Harrington, Elvaston Castle, Derby (gr., Mr. J. H. Goodacre), with 93 points. 5th, Martin White, Esq., Balruddery, Dundee (gr., Mr. R. Cairns), with 88½ points. 6th, Col. Platt, C.B., Gorddinog, Llanfairfechan (gr., Mr. W. A. Coates).

OTHER CLASSES FOR GRAPES.

Four bunches, two of black variety and two of white variety. There were thirteen entries, and therefore fifty-two bunches, shown in this class. The 1st prize was grandly won by Lord Harlech, Brogyntyn (gr., Mr. T. Lambert), who had Madresfield Court and Muscat of Alexandria. Both varieties were very heavy, and Madresfield Court, particularly, were splendidly finished; 2nd, The Earl of Harrington, with Muscat Hamburgh and Muscat of Alexandria; 3rd, Lady Wantage (gr., Mr. W. Fife), with Madresfield Court and Muscat of Alexandria.

Two bunches, Black Hamburgh.—The 1st prize went to Granville Farquhar, Esq., Cholmondeley Castle (gr., Mr. C. Flack), for grandly finished, much shouldered bunches of heavy weight; 2nd, Captain Stirling, Keir, Dunblane, N.B. (gr., Mr. T. Lunt); 3rd, Lord Harlech. There were nineteen exhibits. The best single bunch of the same variety came from Capt. Stirling; 2nd, the Earl of Harrington.

Two bunches of Madresfield Court. — Two excellent bunches from Lord Hastings, obtained 1st prize, his lordship's gardener, Mr. Shingler, being extremely successful in the cultivation of this variety. The berries were models in size, development, and colour; 2nd, Mrs. Burns, North Mymms Park, Hatfield (gr., Mr. C. R. Fielder), who had good bunches, which required a little more to perfect them; 3rd, J. C. Waterhouse, Esq., Prestbury (gr., Mr. A. H. Hall). There were nine exhibits.

Two bunches of Black Alicante.—Two extremely heavy bunches from Lord Hastings obtained 1st prize. They lacked nothing in size or colour, but might have been made more perfect in form had they been thinned rather more freely; 2nd, Messrs. D. & W. Buchanan, Kippen, Stirling, also with heavy, finely finished bunches; 3rd, J. C. Waterhouse, Esq.

Two bunches of Gros Colman or Gros Maroc.—Lord Hastings won 1st prize with Gros Maroc; 2nd, C. F. K. Mainwaring, Esq., Oteley, Ellesmere (gr., Mr. C. Wilkins); and 3rd, Lord Harlech.

Two bunches of Muscat of Alexandria.—There were fourteen exhibits of this most choice variety, the best two bunches being staged by J. C. Waterhouse, Esq. These were not the largest shown, but they were of high quality and perfectly finished, being immeasurably before any others in the class in this respect. 2nd, Mrs. H. S. Gough, Tal-y-Cafn, R.S.O. (gr., Mr. F. W. Everett); 3rd, Lord Wantage—both of the latter exhibits being large in bunch and berry. A very fine bunch from Lady Wantage won the premier award in the class for a single bunch of this variety; Mrs. W. H. Burns being 2nd; and L. Goldie Taubman, Esq., Douglas, Isle of Man (gr., Mr. Jas. Inglis), 3rd.

Two bunches, White, any other variety.—The variety Chasselas Napoleon, from J. C. Waterhouse, Esq., gained 1st prize; and pretty bunches of Buckland Sweetwater, from H. A. Attenborough, Esq., Daventry (gr., Mr. A. Child), 2nd.

Local Grape Classes.

Mrs. F. Alderson, Frankton, Oswestry (gr., Mr. G. Davis), won 1st prize for two bunches of Black Hamburgh, grown in the county of Salop. Lord Harlech 1st prize for two bunches of any other black variety. Lord Harlech was 1st for Muscat of Alexandria; and Mrs. R. Darby, Adcote (gr., Mr. R. Lawley), 1st, for any other variety, showing Buckland Sweetwater.

Collections of Fruit.

The largest class for a collection of fruit was one for sixteen dishes in as many varieties, and not fewer than twelve kinds, nor more than two varieties of a kind, to occupy space 8 feet by 4 feet 6 inches. There were five exhibitors, and the most successful of these was T. Corbett, Esq., Impney Hall, Droitwich (gr., Mr Jordan). Madresfield Court Grapes were very good and Black Hamburgh exceedingly well finished, berries plump, and of good size; Muscat of Alexandria were long, heavy bunches, with good-sized berries, not perfectly finished; the remaining variety was Duke of Buccleuch, the bunches being of medium size, and the berries large. There were capital Violet Hâtive, and Stirling Castle Peaches; Lord Napier Nectarines were of good size, and highly coloured; large and early Apricot, transparent Gage Plums, and Brown Turkey Figs were all good, and there was a dish of large fruits of a sweet Cherry unnamed, and a dish of Oranges, one of Clapp's favourite Pears, and two Melons Hero of Lockinge and Frogmore selected. Next in order of Merit was a collection from the Earl of Harrington, Elvaston Castle, Derby (gr., Mr. J. H. Goodacre). He had Grapes, Muscat of Alexandria, Madresfield Court,, Muscat Hamburgh, and Chasselas Napoleon. The berries of Madresfield Court were particularly fine, and Muscat of Alexandria only required a little more time to make them first-class. Royal George Peaches were good, and Lord Napier Nectarine. The Nectarine Peach, Transparent Gage Plums, Moorpark Apricot, a dish of Cherries, Margaret Marillat Pears, Ribston Pippin Apples, Brown Turkey Figs, not particularly attractive in appearance; Royal Favourite and Taunton Hero Melons, completed the exhibit. 3rd, the Hon. Mrs. Meynell Ingram, Temple Newsham (gr., Mr. R. Dawes), who had Bananas (Musa Cavendishi), among the kinds more generally shown 4th, Jas. Martin White, Esq., Balruddery, Dundee (gr., Mr. R. Cairns); and 5th, Sir W. Pease, Bart., M.P., Hutton Hall, Guisborough (gr., Mr. J. McIndoe), who included a nice dish of Guavas (Psidium Cattleyanum), very seldom seen in show collections of fruit.

Collection of twelve dishes.—Not fewer than nine kinds might be shown in this class, but each dish had to be distinct in variety. The exhibits were staged on spaces of 6 feet by 4 feet 6 inches, and the 1st prize of £10 was won by Mrs. F. Need, York House, Great Malvern (gr., Mr. J. Jones). In this exhibit there were Madresfield Court, Muscat of Alexandria, and Gros Maroc Grapes, the two black varieties being heavy, and of large sized berries, the Madresfield Court requiring a few more days to finish perfectly, and the Muscats were likewise heavy, large bunches, but lacked colour; two bunches of Mrs. Pearson Grapes were neat, but berries rather small; Violette Hâtive and Stirling Castle Peaches were large in size, and very good in colour; Violette Hâtive Nectarines also being very worthy of remark. Other dishes included July Green Gage Plums, Moor Park Apricots, Brown Turkey Figs, Doyenné Boussoch Pears, and Frogmore Scarlet Melon. 2nd, Lady Louisa Ashburton, Melchet Court, Romsey (gr., Mr. G. Hall); this exhibitor had Muscat of Alexandria, Black Hamburgh, and Madresfield Court Grapes, very highly coloured Nectarines and Apricots, &c. 3rd, Lord Bagot, Blithefield, Rugeley, Staffs.

Collection of nine dishes.—The 1st prize in this competition was won by the Rev. T. M. Bulkeley Owen, Tedsmore Hall, West Felton, who had two very good bunches of Madresfield Court Grapes, two bunches of Foster's Seedling Grapes, and Peaches, Nectarines, Plums, Pears, and a Melon; 2nd, Lord Trevor, Brynkinalt (gr., Mr. W. Dawes).

Peaches.

There were as many as 18 dishes exhibited in the class for six fruits, and the 1st prize went to Mrs. Meskin, Cresswell, Stafford (gr., Mr. J. Wilkes), for extra large and very highly coloured fruits of Bellegarde. Mrs. F. Need, Great Malvern, was 2nd with Stirling Castle.

Nectarines.

There were 13 dishes of six fruits each, and the 1st prize was won by grandly coloured fruits from T. F. Kynnersley, Esq., Leighton Hall, Ironbridge

(gr., Mr. W. Phillips); 2nd, Mrs. F. Needs, with Violet Hâtive; and 3rd, T. Corbet, Esq., Impney Hall, Droitwich, with exquisitely coloured specimens of Stanwick Elruge.

Apricots.

Of 12 dishes of six fruits each, the best was one of Early Red, shown by G. F. Bates, Esq., Whitfield Gardens, Hereford (gr., Mr. R. Grindrod, the fruits shown being remarkable alike for size and colour; 2nd, Mark Firth, Esq., Wistow Hall, Leicester (gr., Mr. F. J. Clark); and 3rd, T. Corbet, Esq., for Moorpark.

Melons.

Of eight green-fleshed Melons, the best was shown by Mrs. F. Alderson, Gannow Hill, Frankton (gr., Mr. Geo. Davies); 2nd, the Earl of Lathom, Ormskirk (gr., Mr. B. Ashton), with Countess of Lathom; and 3rd, Mark Firth, Esq., with Royal Jubilee.

There were twelve scarlet-fleshed Melons, and the 1st prize went to Gunton Scarlet, shown by T. Corbet, Esq.; Mrs. R. Darby, Adcote, being 2nd with Benham Beauty; and Mark Firth, Esq., 3rd with Lord Derby.

There were also twelve white-fleshed varieties, of which Hero of Lockinge, shown by Sir G. Meyrick, Bart., Anglesey (gr., Mr. Pilgrim), was the best.

Plums.

The best dish of twelve Gages was one of Transparent Gage, shown by H. H. France Hayhurst, Esq., Wellington (gr., Mr. S. Bremmell); 2nd, W. E. King King, Esq., Leominster.

The 1st prize for six fruits of yellow Plums, other than Gages, was awarded to a nice dish of Burbank, shown by Sir W. Pease, Bart.; 2nd, Jefferson's Plum, from the Earl of Harrington.

The best purple Plum was Grand Duke, from the Earl of Harrington.

Of red-fruited varieties, Cox's Emperor was best, from the Earl of Harrington; General Sago 2nd, from Sir J. W. Pease, Bart.; and Pond's Seedling, from H. H. France Hayhurst, Esq., 3rd.

Cherries.—The best dish of Cherries was shown by E. A. Young, Esq., Bangor (gr., Mr. A. Ruddock).

Hardy fruits.—The 1st prize for the best six dishes of hardy fruits grown in Salop was won by Capt. T A. M. Dickin, Esq., Wem.

CUT FLOWERS.

There were very numerous classes in this section, and though some flowers would have been better had the weather not been so ungenial, most kinds made good displays. The 1st class was for a display of floral arrangements, upon a space of 12 feet by 5 feet, and Messrs. Jones & Sons, Shrewsbury, who won 1st prize, may be congratulated upon the attractive display they made.

Mr. W. Hayward, Kingston-on-Thames, won 1st prize for ball and bridal bouquets, Messrs. Jones being 2nd; and in a similar class from which Orchids were excluded, Mr. W. Treseder, Cardiff, won with exceedingly chaste-looking arrangements. Mr. Treseder had also the best bouquet of Cactus Dahlias, and the best shower bouquet of Roses; but Messrs. Jones & Son won for a feather-weight bouquet, showing one of extreme lightness. Messrs. Jones & Son also showed a pretty basket of cut flowers, and a stand of flowers suitable for table decoration. There were pretty buttonhole-bouquets, and other illustrations of floral art.

The best collection of twenty-four bunches of hardy flowers was shown by Miss Hamberton, Newton Hall, Chester (gr., Mr. Wakefield); Messrs. I. House & Co. being 2nd; and Miss Hamberton also had premier prize for 12 bunches, showing Montbretia crocosmiflora, Helenium grandiflorum, Achillea The Pearl, Dianthus Napoleon III., Phlox Avalanche, Lilium speciosum album, L. longiflorum, Helianthus rigidus, Gypsophila paniculata, Chrysanthemum maximum, Echinops ruthenicus, and Aconitum Napellus.

For a collection of hardy perennials (Roses excluded), arranged to occupy a space 15 feet by 5 feet, the winner of 1st prize was the Messrs. Harkness & Son, Leeming Barr, whose very representative collection contained gorgeous bunches of Lilium Batemanæ, Papaver nudicaule, P. n. striatum, and miniatum, herbaceous Phlox, Gladiolus, brilliant Gaillardias, &c. Of four or five other exhibitors, the winners of the 2nd prize were Messrs. Isaac House & Son, Coombe Nursery, Westbury-on-Trym, near Bristol; 3rd, Messrs. G. Gibson & Co., Bedale, Yorks.

The society's class for twelve bunches of *Sweet Peas* brought several competitors, and the 1st prize was won by Mr. R. Bolton, Warton, Carnforth, who had very good flowers of the best varieties to date. A very charming exhibit was made in Class 66, one for an arrangement of Sweet Peas suitable for a dinner-table on a space 4 four 6 inches by 3 feet. Miss R. Coster, Handsworth, showed pale pink, rose, and buff-shaded flowers in silvered rustic stands, and relieved the flowers with sprays of brownish Selaginella.

In Class 67, in which Mrs. H. Eckford offered prizes for the best exhibits of eighteen varieties of Sweet Peas, there were numerous exhibits, the best coming from the Hon. Mrs. Kenyon, Whitechurch. Mr. Robt. Sydenham also offered prizes for twelve bunches, and among many exhibitors the best was Mr. R. Bolton, Warton, Carnforth.

Dahlias.—Of several collections of Cactus or decorative Dahlias, upon spaces of 10 feet 6 inches by 5 feet, the best was from Messrs. Keynes, Williams & Co., Salisbury; Messrs. Jones & Son, Shrewsbury, were 2nd; and Messrs. W. B. Rowe & Son, Worcester, 3rd.

For a collection of any varieties on a space similar to that in the last-mentioned class, Mr. W. Treseder, Cardiff, was 1st; and Messrs. Keynes, Williams & Co., Salisbury, 2nd.

The best collection of twenty-four Cactus varieties was from Mr. S. Mortimer, Rowledge Nurseries, Farnham; the Hon. Mrs. Kenyon, and Messrs. Keynes, Williams & Co, following.

Of show and fancy Dahlias there were several collections of twenty-four blooms each, and the prizes were gained by Messrs. Campbell & Son, High Blantyre; Mr. S. Mortimer, and Mr. W. Treseder, respectively.

African Marigolds in Messrs. Dobbie's class for twelve blooms were very brilliant. W. E. King King, Esq., Bodenham, Leominster, winning 1st prize for very heavy blooms of the pale and rich-coloured varieties.

Asters were not particularly good, being later this year than usual; but Gaillardias looked very pretty in loosely-arranged bunches.

The best collection of Carnations and Picotees shown in vases, &c., with their own foliage and buds, without any dressing, came from Messrs. Thomson & Co., Sparkhill, Birmingham, who made a very nice display in Bamboo-stands, vases, &c., and showed blooms of good quality; 2nd, M. Campbell & Son, High Blantyre; and 3rd, Messrs. Blackmore & Langdon, Bath. There were several other exhibitors.

Gladiolus.—Messrs. Harkness & Son had 1st prize for a collection of thirty-six spikes of Gladiolus; and Messrs. R. Harkness & Co., Hitchin, 2nd.

VEGETABLES.

These were staged in unusual profusion, and, for the season, were remarkably good, the prizes in the various classes being as follows:—

In Messrs. Jas. Carter & Co.'s class for nine kinds, three lots competing, Mr. J. Gibson, gr. to R. W. Hudson, Esq., Marlow, Bucks, was 1st, having unnamed very fine Onions, White Celery, Tomatos, Cauliflowers, Runner Beans, Peas, Carrots, Round Potatos, and Leeks, all of superb quality. Mr. E. Beckett, gr. to Lord Aldenham, Elstree, was a very close 2nd, having fine Telegraph Peas, Jeannie Dean Potatos, Jubilee Runners, Tomatos, Perfection Carrots, Leeks, and Cauliflowers. Mr. R. Ashton, gr. to the Earl of Lathom, Ormskirk, was 3rd.

Messrs. Sutton & Sons class, also for nine vegetables, brought nine collections, Mr. Gibson again coming 1st with very high-class exhibits. Here he had fine Ailsa Craig Onions, Autumn Giant Cauliflowers, Fulham Prize Celery, Prizetaker Leeks, Perfection Tomatos, Gladstone Peas, Red Intermediate Carrots, and Supreme Potatos. Mr. Beckett, was again 2nd, having fine white Celery, Parsnips, Ailsa Crag Onions, Giant Cauliflowers, Duke of Albany Peas, Potatos, &c.; Mr. B. Ashton, was 3rd; Mr. J. Bastin, gr., to Sir Alex. Henderson, Bt., Buscot Park, Berks, came 4th; Mr. Read, gr., to the Earl of Carnarvon, Bretby Park, 5th; and Mr. C. Wilkins, gr., to C. F. R. Mainwairing, Ellesmere, 6th.

Five lots were in competition in Messrs. Webb & Sons class for eight kinds. Here Mr. Beckett, who was very strong, took 1st place, with very fine samples. He had Cauliflowers, Exhibition Runner Beans, Sensation Tomatos, Potatos, Cucumbers, &c.; Mr. Bastin, was 2nd, with a strong collection; Mr. Ashton, 3rd; Mr. W. Pope, gr., to the Earl of Carnarvon, Highclere Castle, Newbury, whom the season has not suited, was 4th; and Mr. Read, 5th.

Messrs. R. Smith & Sons, Worcester, offered prizes in a class for twelve dishes, Mr. R. A. Herspool, Rhuabon, being 1st; Mr. Jordan, gr. to T. Corbett, Esq., was 2nd, and Mr. G. Davies, Pool Parna, was 3rd.

Mr. E. Murrell, Shrewsbury, offered prizes in two classes of eight and six dishes. The first and second places in the large class were taken by Mr. J. Birch, gr. to Capt. H. L. Butler, Shelton Hall, and Mr. E. Walker, gr. to Sir W. Honyman, Whitchurch.

In the smaller class, Mr. E. Clowes, gr. to Mrs. Jas. Cock, of Medgebourne, was 1st, and Mr. J. Abbett, gr. to Mrs. Guise, Hadnall, was 2nd.

The classes for collections promoted by the society were of less value than were those given by the trade, but very good competition resulted. With 12 dishes Mr. E. Beckett was 1st, having besides the kinds previously mentioned Ideal Cucumbers, Snowball Turnips, and Globe Artichokes; Mr. Ashton was 2nd, and Mr. Pope 3rd. In the class for nine dishes there were six collections, the best coming from Mr. J. Hay, gr. to J. H. Lees, Esq., Buyton Park; Mr. Huxley, gr. to J. B. Wood, Esq., Ludlow, being 2nd. There were no fewer than forty collections staged, and in them were some 350 dishes. Single dishes were in great quantity, both for prizes offered by the Society, and for those offered by Mr. M. Sydenham, of Birmingham.

For three dishes of Potatos Mr. B. Ashton was 1st, having handsome Ideal and Duke of York White, and Mr. Bresee red varieties. He was also 1st with handsome Ideal in the single dish class. Mr. A. W. Hall, gr. to J. C. Waterhouse, Esq., Prestbury, had the best six Tomatos; Mr. Beckett was 1st in Cucumbers, Mr. Weston, Hodnest, the same with Clacstone Peas; Mr. Powell, of Addlestone, had the best Dwarf Beans; Mr. D. Bresee, Percy Green, had superb Scarlet Runners; and with two beautiful Cauliflowers Mr. A. Ruddock was 1st. The best Celery came from Mr. G. Buchanan, gr. to Sir Colley Sutland, Chilton Grove; Parsnips too long, Carrots and Turnips were very handsome.

Mr. Beckett had the finest Onions, and also with five fine bulbs won Mr. Cranston's valuable prize, yet in offering one prize only, a sum large enough for three, the competition was small.

All Mr. Sydenham's single dish classes were well contested, and the products were in all cases first-class.

There were a few honorary collections from the trade, including a miscellaneous one from Messrs. Jarman & Son, Chard, Somerset; and a very beautiful collection of Potatos, not large samples, from Messrs. Dobbie & Co., Rothesay and Orpington. There were sixty dishes in fifty varieties, specially noticeable being their Improved Kidney, The Factor, Favourite, and The Crofter.

Non-competitive Exhibits.

Messrs. Dobbie & Co., Rothesay, N.B., had a very large exhibit, composed of cut blooms of Violas and Pansies, of the first quality and in numerous varieties; Sweet Peas in bunches, and Marigolds.

Mr. M. Pritchard, Christchurch Nurseries, Hants, had a group of cut hardy flowers of high quality, and remarkable for good cultivation.

Another collection of hardy flowers was shown by Messrs. Geo. Jackman & Son, Woking Nursery, Surrey, in which Cactus and other Dahlias were conspicuous.

Messrs. W. Bull & Sons, 536, King's Road, Chelsea, London, showed some choice stove foliage plants, including Cordyline Victoria and varieties of Codiæum, &c.

Messrs. Barr & Sons, King Street, Covent Garden, London, exhibited hardy flowers, in which some very effective varieties of herbaceous Phlox were included.

Mr. Albert Myers, Sutton Lane Nurseries, Shrewsbury, made a most brilliant display with zonal Pelargoniums, showing plants in flower, and blooms arranged in various ways with Gypsophila sprays, &c.

Messrs. Dicksons, Ltd., Chester, exhibited very numerous varieties of herbaceous Phlox among other hardy flowers, and conspicuous in this exhibit also were some fine flowers of Romneya Coulteri.

Another collection of hardy flowers came from Mr. Walter B. Child, Acock's Green.

From the King's Acre Nurseries, Ltd., King's Acre, Hereford, were shown cordon-trees of Apples and Pears in pots, also a number of dishes of hardy fruits.

Mr. Jno. Wood, Penrith, exhibited Sweet Peas, &c.

Roses were shown by Mr. Edwin Murrell, Shrewsbury, who staged his flowers in a somewhat novel fashion, having large panels, as it were, of the yellow Tea Perle des Jardins, Niphetos, &c., in bunches let into a ground-work of moss, a few Ferns being put round each variety, and there being twenty-five or thirty bunches of each.

Messrs. Ed. Webb & Son, Wordsley, Stourbridge, had a group of hardy flowers, a quantity of Gloxinias in pots; also cut Lilies, double-flowered Hollyhocks, and some choice vegetables.

Messrs. Hobbies, Ltd., Dereham, Norfolk, had a large group of cut flowers of a variety of species, including their new white perennial Pea.

Mr. S. Mortimer, Rowledge Nurseries, Farnham, showed a large collection of Dahlias; Messrs. Laing & Mather, Kelso-on-Tweed, a group of flowers of Souvenier de la Malmaison Carnations; Mr. J. Deverill, Banbury, a group of hardy flowers; Mr. W. Waters, Westleigh, Acock's Green, Violas; Mr. W. L. Pattison, Shrewsbury, Violas; Messrs. Thompson, Sparkhill, Birmingham, a few "dressed" Carnations; Messrs. W. & J. Brown, Peterborough, a group of plants of Heliotropes, zonal Pelargoniums, &c., also cut Carnations; Messrs. Hewitt & Co., Birmingham, hardy flowers; Mr. H. Eckford, Wem, Dahlias; Mr. R. Bolton, Warton Carnforth, Sweet Peas; Messrs. R. Hartland & Sons, Cork, a large number of cut blooms of tuberous-rooted Begonias and Gladiolus; Messrs. J. Peed & Son, Norwood Road Nurseries, London, S.E.,

cut flowers of Begonias; Messrs. JARMAN & Co., Chard, Somerset, sweet Peas and Begonias, Mr. J. DERBYSHIRE, Altrincham, Sweet Peas, &c. Messrs. JONES & SONS, Shrewsbury, a large collection of Sweet Peas.

Begonias with remarkably fine flowers were shown by Mr. F. DAVIS, Woolas Hill, Pershore, an amateur grower who held his own with ease with double varieties carrying huge blooms well refined, being strong in all colours, but notably so in yellows.

Two other groups were from those well-known growers Messrs. B. R. DAVIS & SONS, of Yeovil, who staged an excellent assortment of both single and double varieties, two of the finest of the latter being Countess Cromer, a pure white, and W. Sparshot, a huge orange-scarlet, a notable plant; and by Messrs. BLACKMORE & LANGDON of Bath, who were particularly strong in the softer tints, pinks, apricots, buffs and yellows being most noticeable.

Messrs. R. SMITH & Co., Worcester, staged a large group of decorative flowering and foliage plants, with cut examples of early herbaceous flowers. Of the latter Montbretia Bouquet Target was a distinctly promising variety of brilliant colour; this group was well set up, and formed an attractive feature. It was arranged upon the ground, and lost nothing in effectiveness by being placed upon the ground level.

Messrs. J. VEITCH & SONS, Royal Exotic Nursery, Chelsea, London, set up, also upon the ground, a large group of choice stove and greenhouse decorative plants and Ferns, with some good Orchids and a few capital Nepenthes; this group contained several suggestive plants for grouping purposes.

Mr. J. RUSSELL, of Richmond Nurseries, Surrey, had a well-grown group of Codiæums, Crotons, Alocasias, and other specialties of useful character.

Messrs. PRITCHARD & SONS, of Shrewsbury, had a large assortment of trained plants of the Japanese Larch, Larix leptolepis; several examples of Davallia bullata in various forms, and other decorative Ferns.

Mr. J. H. WHITE, nurseryman, Worcester, staged a large and varied assortment of cut flowers in season, including a few of the newer Water-Lilies, and some dwarf decorative plants.

Mr. J. Hudson, gr. to LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton, arranged upon the turf a large assortment of Water-Lilies (Nymphæas), comprising the best known species and hybrids, in all thirty or more varieties, with a large assortment of aquatic, bog, or marsh plants, &c., at the background.

MEDALS AWARDED.

LARGE GOLD MEDALS were awarded to Messrs. R. Smith & Co., Worcester; Mr. F. Davis, Woollas, Pershore; Blackmore & Langdon, Bath; B. R. Davis & Son, Yeovil; Leopold de Rothschild, Esq. (gr., Mr. Jas. Hudson); Pritchard & Son, Shrewsbury; Jas. Veitch & Sons, Chelsea; Dobbie & Co., Ltd., Rothesay; J. Murrell, Shrewsbury; Hartland & Son, Cork; Hobbies & Co., Ltd., Dereham.

SMALL GOLD MEDALS were awarded to John Russell, Richmond Nurseries, Surrey; J. H. White, Worcester; M. Pritchard, Christchurch; Jackman & Son, Woking; A. Myers, Shrewsbury; W. B. Child, Acock's Green, Birmingham; King's Acre Nurseries, Hereford; E. Webb & Sons, Wordsley; Jones & Son, Shrewsbury; R. Bolton, Warton, Carnforth; Jarman & Co., Chard; Hewitt & Co., Birmingham; Laing & Mather, Kelso; and S. Mortimer, Farnham.

The following received SILVER MEDALS:—W. J. Scott, Shrewsbury; Bull & Sons, Chelsea; Barr & Sons, King Street, London, W.C.; Dicksons, Ltd., Chester; I. House & Son, Bristol; Jno. Wood, Penrith; H. Eckford, Wem; J. Peed & Son, Norwood, London; W. & J. Brown, Peterborough; J. Derbyshire, Altrincham; H. Deverill, Banbury; Thomson & Co., Birmingham; Pattison, Shrewsbury: and Waters, Shrewsbury.

Answers to Correspondents.

ADIANTUM: *Raspail.* In the early spring when growth has begun, not now; every bit with roots will grow then.

AN ARTICLE TO SUPERSEDE FLOWER-POTS IN THE CULTIVATION OF FORCED PLANTS FOR MARKET WORK: *M. & Co.* France, Holland, Russia, Germany, Channel Islands, Denmark, Norway and Sweden, and U. S. A. In subtropical countries pots or their substitutes are not much required.

BEECH HEDGE, HEIGHT OF: *W. L.* Why not apply for information at headquarters? We cannot help you.

BERBERIS AQUIFOLIUM AND COTONEASTER INJURIOUS TO STOCK: *J. C. B.* We know of no instance in which animals have died after eating shoots and berries of Cotoneaster; and if the cow really died from that which she devoured, it is more likely to have been the Berberis. The Cotoneaster contains tannin, probably. The Berberis possesses acid, bitter and astringent properties; and some species contain oxalic acid.

BOOKS: *J. B. Stove and Greenhouse Plants*, by the late Thos. Baines. A perfectly trustworthy work on the subjects of which it treats.

CARNATIONS: *W. A. R.* Good border varieties brilliant in colour, and some of them agreeably scented. If they are strong growers, they will be useful.

CORKY MELON-ROOTS: *B. & Sons.* An answer to the query will appear in the report of the last meeting of the Royal Horticultural Society Scientific Committee in our next issue.

CUCUMBERS: *E. W.* The fruits sent are affected with a fungus which has caused them to "gum." You do not say whether the roots and leaves are healthy or not. As a matter of precaution, we should advise you to spray the healthy plants with liver-of-sulphur ½-oz. to 1 gallon of water. You can do nothing but burn the diseased plants.

DIMENSIONS OF A CROQUET COURT: *A. B. C.* No definite size required, only a level piece of turf, 10 to 20 yards square. Apply at Mr. Upcott Gill's, 170, Strand, for a book on the rules of the game.

DONATION BY J. W. YOUNG: The postage-stamps kindly sent have been passed on to Mr. B. Wynne, Secretary of Royal Gardeners' Orphan Fund.

FERNS: *W. Miller.* Fronds much shrivelled; best sent flat between paper. 1, inferior seedling of Athyrium f.-f. Pritchardi; 2, Polystichum angulare parvissimum; 3, P. a. lineare; 4, worthless forms of Athyrium f.-f.; 5, possibly seedling of A. f.-f. pulcherrimum. *C. T. Druery.*

FUNGUS FOUND BY WAYSIDE: *Pan-Adam.* Common Stinkhorn, Phallus impudicus, in the egg stage. *M. C. C.*

GLOXINIA LEAVES: *W. G. B.* We believe your leaves are affected with a mite. Try washing them with tobacco-water. See answer to "Perplexed."

GOOSEBERRIES: *T. W.* Smashed in the post and unrecognisable. Pack in a wooden or metal box if you send again.

GRAPES: *E. F. H.* The berries are affected with the so-called "rust," which, as you know, is caused by hot vapour, cold draughts reaching the berries whilst warm and moist, excess of sulphur on the heating apparatus, &c. We are unable to say which it is of these. Certainly it is not scalding, or fungus.

INSECTS: *G. S.* The Giant Sawfly, Sirex gigas. They bore into timber, and are very destructive. Get the last edition of Miss Ormerod's *Manual of Injurious Insects* (Simpkin, Marshall & Co.).

INSECT AND FUNGUS INFESTED PLANTS: *Perplexed.* The Eranthemum leaves are covered with white thrips, and should be fumigated with XL-All or washed with an insecticide, say Gishurst Compound Soap at the rate of 2ozs. to a gallon of water, or with petroleum soap. The Begonia leaves are infested with the mite, and the same remedies hold good. The Celosias are covered with red spider, and are past cure. The small leaves of Begonia have been punctured by an insect, but what it is, we are unable to say. The Crassula, a plant not easily injured, seems to have received some mechanical injury, and the bruised leaves are in a state of decay. The fruit of the Cucumber seems to have had the whole of the rind injured by hot fumes thrown off by much heated pipes, and the leaves injured probably from the same cause. Generally, it may be said that the state of the plants of which leaves are sent is due to bad cultivation.

LILIES: *S.* The Lily fungus, which is doing much harm this season. Take up the bulbs and place them in bags containing flowers-of-sulphur, and shake them frequently so that the sulphur may penetrate between the scales as much as possible.

LOSS OF BLOOM ON GRAPES: *Pinkie.* Undoubtedly the syringing is the cause of the loss. It is better to drop the practice at an early stage, or not syringe at all.

NAMES OF FRUITS: *G. H.* Fig, Brown Ischia.—*W. H. B.* Peach was smashed on arrival and we are unable to give you the name of the variety. The Plum is the Jefferson.

NAMES OF PLANTS: *H. C. E.* Chrysanthemum coronarium, not "herbaceous," surely! Is it not an annual?—*W. T.* 1, Clematis virginiana; 2, Verbascum phœniceum.—*Doubtful.* 1, Lonicera hirsuta; 2, Lysimachia thyrsiflora; 3, L. vulgaris; 4, flowers dried up, send again; 5, Elymus glaucus.—*H. Williams, Trevinn.* Veronica salicifolia.—*Correspondent.* 1, Philadelphus coronarius 2, not recognised; 3, Deutzia crenata double fl.; 4, D. scabra. All the specimens shrivelled, so that the names given are merely conjectural.—*Alfred C. Leney.* Spiræa ariæfolia.—*Doubtful.* Calamagrostis epigejos.—*Box, no name.* Borago officinalis.—*A. & B.* Staphylea pinnata.—*A. E. G.* 1, known in gardens as Xylophylla latifolia, now called Phyllanthus speciosus; 2, Codiæum angustifolium; 3, C. trilobum; 4, C. spirale; 5, C. interruptum; 6, C. Johannis; 7, C. Mortii. The Codiæums are generally called Crotons in gardens.—*F. C., Guildford.* Gentiana pneumonanthe, a rather rare species.—*W. R. T.* Centaurea macrocephala.—*R. T. H.* Polemonium cœruleum.

PEACHES WITH SPLIT STONES: *S. & S.* and *E. W. W.* This malady has been often accounted for during the current season and in former years in our pages. See our issue for July 5 last, p. 12. Usually it is due to a check caused by great dryness of the soil in the early stages of the development of the fruit followed by heavy rains or artificial application of water. The best safeguard is found in keeping the soil moderately moist always.

RASPAIL PELARGONIUM EXPECTED TO PRODUCE BLOSSOMS IN THE WINTER SEASON: *Raspail.* All blooms must be picked off, and the plant afforded a rest by keeping the soil dryish and the plant cool in a frame.

SEEDLING VIOLAS: *F. F.* For your own garden the seedlings may be worth propagating, but there are many named varieties of the same tints that are finer.

VINES MILDEW: *Cymro.* As the attacks of mildew occur every year, it might be advisable to remove the Vines in the affected area, and substitute others for them. We are, however, of the opinion that there exists a reason for these persistent mildew attacks. Are there any host plants of which mildew is always found in the neighbourhood of the vinery? or are you sufficiently careful in avoiding that cold damp state of the air, that favours the growth of mildew? In any event, clear out the upper crust of the border, and lime-wash the walls, and clean every bit of glass and woodwork.

WHITE SWEET PEA: *Tweed.* A fine large flower of great substance, and the flower-stalk correspondingly strong. Worth perpetuating and making constant.

COMMUNICATIONS RECEIVED.—E. J. Ashelford.—J. R.—E. M.—S. A.—S. M.—H T.—F. C. Heinemann, Erfurt—G. Claridge Druce (with thanks).—Oxfordshire County Council.—G. M. Woodrow (with thanks).—Prof. Waugh, Amherst, Mass., U.S.A.—Geo. Monro.—Dun.—W. L. M., Texas.—D. L., Doncaster.—H. Turner—A. Chantin, Paris.—F. A.—G. H.—W. M.—Canon E.—Messrs. Veitch & Sons—H. S.—F. W. B.—Sir M. F.—W. T.—J. H.—T. M. (yes, certainly)—A. G. (next week)—H. E.—D. G. W.—Allan.—H. C. D.—C. H. B.—E. A.—N. D.—T. N.—C. H. W.—D. G. W.—J. M. M., Pittsburg—J. G.—Corycius senex.—W. M.—J. O'B.—N. E. B.—R. D.—J. C.—H. H.—J. R. J.—G. H. Budde.—W. H.—E. H. J.—Expert.—O. T.—N. E. D.—J. W.—A. R.—J. J.—T. D.—W. C.—Constant Reader.—E. P.—A. H. E.—H. S.—M. A.—H. Elliott.

(*For Markets and Weather, see p. viii.*)

THE

Gardeners' Chronicle

No. 818.—*SATURDAY, AUG.* 30, 1902.

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TREES HISTORIC AND COMMEMORATIVE.

IN a country village on Coronation day I witnessed the planting of a tree. A somewhat lanky Oak, encircled with Venetian masts and flags, was held in position by the gardener. The Rector, standing on a heap of thrown-out earth, discoursed in brief, lively fashion upon tree-lore; a pretty Hamadryad of some twenty years, daughter to the principal resident, threw in a few spoonfuls of soil; and after the inevitable "God save the King," the attendant crowd dispersed to games and tea and fireworks, while hands stronger than feminine filled in the earth, attached the supporting post, and made fast the protecting iron cage.

When all were gone, I sate in reverie beside the tree, indulging the speculations which it called up, until, like Tennyson's Talking Oak, "it plagiarised a heart and answered with a voice," its fluttering leaves vocal as the myriad tongues which in Michael Field's *Callirhoe* wagged at Emathius from the Epirus grove. They told of the ever-present influence of trees in the annals of mankind, of their associations historic, literary, religious; of events and men whose memory they have embalmed; of superstitions terrible or fantastic which swathed them once and haunt them still; of the imposing stature and longevity which have endowed them with commemorative value.

Sometimes in metaphor, sometimes in narrative, they crowd the Bible page. In metaphor: At the opening of Genesis a tree brings death into the world; at the close of the Apocalypse a tree is set for the healing of the nations. An Olive-tree announced the abating deluge; from a flaming Acacia issued the commission to Moses. Isaiah decks his regenerated earth with Myrtle instead of Thorn, Fir-tree instead of Briar; the Psalmist depicts his righteous man as a tree planted by the water-side; Christ compares his kingdom of heaven to a mighty tree springing from a grain of Mustard-seed. Nor less in narrative: Under the "Oak of Enchantments" Jacob buried the idolatrous amulets of his wives; beneath the "Oak of Tears" was entombed his aged nurse. The stately Cedars of Lebanon, emblematic in psalm and prophet, have been described in their venerable survival by Hooker, Kinglake, and Warburton. The Palm-groves, native to the Jericho oasis, fostered into rich luxuriance by Solomon, and long afterwards by Herod, lent a proverb to the Latin poets. To Sir John Maundeville was shown "the tree of Eldre that Judas heng himself upon, for despeyt that he hadde when he solde and betrayd oure Lorde." And to-day, as the traveller enters Jericho, his Arab guide points to a tall Sycomore or Fig-Mulberry, and screams out the name "Zacchee."

Tree-worship seems to have entered into the religious development of every race, continuing still among low-cultured tribes. Its deeply-rooted hold upon Semitic theology is shown by the incessant lapses of the Israelites, "enflaming themselves with idols under every green tree," in spite of stern prophetical denunciations. The Greeks, who beautified everything, assigned to each tree its separate divine tenant; divine and potent for mischief or for help, yet dying with the tree whose genius it was. That men sprang from trees is a belief as old as the Odyssey, extending easy credence to the metamorphose of Daphne or of the sisters of Phaethon, to the bleeding bough of Virgil, reproduced by Tasso and by Spenser. In the forest of Dodona stood a speaking Oak, which expounded lively oracles. The Buddhist sacred books endue every tree with a *deva* or tenant spirit; the Bo or Asoka tree of Ceylon received continuous worship for near eighteen centuries until its destruction a few years ago; and to this day sacred texts and prayers are legible to the faithful on the Kŭm-bŭm trees of Thibet. The Druids sacrificed white bulls to Oaks on which grew the Misleto; the weird Iggdrasil of our Scandinavian forefathers sunk its roots in hell, touched heaven with its summit, while its boughs enveloped earth, its leaves, flowers, and fruit were the lives and deeds of men.

In face of this strong instinct Christianity was powerless. St. Boniface might hew down the Hessian Heaven god, St. Amator destroy the sacred Pear-tree of Auxerre, but to the miraculous Rose tree of Hildesheim, to the Stock am Eisen of Vienna, to St. Joseph's Glastonbury Thorn, still cling superstitions akin to or derived from older worship. Even to-day in rustic England is practised divination by Apple-pips; while the Apple trees themselves are wassailed by Devonshire women with a hymn of invocation in the early spring. Rowan-sprigs are still worn as a preservative against witchcraft; rhabdomancy attaches virtue, not to the idiosyncrasy of the water-finder, but to the forked Hazel-twig he carries; the belief abides in eastern England that the Danewort (Sambucus ebulus) grows only where Danish blood was spilt. Surnames such as Holyoak and Holywood attest the not remote existence in our own island of sacred trees and groves; while in recent poetry Shelley recognised the spirit which sate within his sensitive plant; and Wordsworth, pagan to the core, brings out his animistic creed in "Nutting" and in the "Yews of Borrowdale."

"All these have vanished;
They live no longer in the light of reason;"

we have lost the deification of Nature which gave their meaning to such fancies, and their loveliness with their meaning; what was once an expression of devout belief has dwindled into a quaint conceit.

But the scepticism which has rationalised away the mystery of trees, leaves untouched their commemorative value, as subtle almost and as moving as the ancient cult; for in viewing a tree charged with history we pass an illusion on ourselves. "This stone shall be a witness to you," said Joshua, after his dying charge to Israel, "for it hath heard." And so we half-consciously credit historic trees with having seen, heard, remembered, borne witness to the men or the events whose names they bear. When in the opening of *Ivanhoe*, Scott notes the wide-branched ancient Yorkshire Oaks as having "witnessed the stately march of Roman soldiery," we feel the penetrating gain of the association; just as we pause with Dean Stanley before the eight aged Olives of Gethsemane, as the most affecting and eloquent, because the most alive, of all Jerusalem memorials. I remember what I felt when, driving us through the New Forest on the coach top in my childhood, the coachman pointed with his whip towards the Rufus tree, beneath which the Red King by his loved huntsman's arrow bled. My dull *Pinnock's History* became alive; the scared archer knight, the bleeding corpse tossed irreverently into a charcoal-burner's cart, were not school legends but realities. A boy at Winchester who lived in Sherwood Forest used to thrill us with his tales of the Greendale Oak of Robin Hood, for to us, uncritical and pre-Nieburhian, Robin was quite as real as Rufus. And when in later years I came to picnic beside Wycliffe's Oak in Epping Forest, to muse over Sir Philip Sidney's Oak at Penshurst, and the crooked Maple planted by Laud in St. John's College garden; when I climbed into the Oak of Boscobel, and once harangued a crowd of labourers by torchlight from beneath John Wesley's tree at Stony Stratford; when, visiting Oxford to-day, I see Bishop Heber's Chestnut overhanging Brasenose Lane; or ascend Headington Hill that I may behold far off against the evening sky upon the Cumnor Hills the Scholar Gypsy's tree, I found and find the old spell still unbroken, the Pantheist within me unconverted.

The illusion demands antiquity; the hundred years at least which Horace and

Pope desiderate to stamp an author as a classic must also sacramentalise a tree. The American Tree of Liberty is venerable; the Victoria Jubilee trees, the Edward Coronation trees, are in their nonage still. They too will some day be ancient; let us hope that our posterity, surveying them in their full boskage of maturity, will not be too busy or too practical to question and interpret the oracles that breathe within their leaves, to apprehend the lore which Shakespeare's banished Duke distilled from the uses of adversity—a lesson hackneyed and familiar in the repetition, profound and fruitful when discovered by oneself—the lesson that there are "tongues in trees." *Corycius senex.*

NEW OR NOTEWORTHY PLANTS.

TYPHONIUM GIGANTEUM, ENGLER. (VAR. GIRALDI).

IT seems that the type of this very interesting and also beautiful Aroid is not found in a living state in European collections, but the yet finer variety Giraldi is known. This was named in honour of the late Padre Giraldi, who discovered the plant in Northern China, sending bulbs of it to Italy, where it flowered first in the garden of Mr. T. Hivudi, in Tuscany. My friend gave it to me two years ago, and now it flowers and seeds freely every year in my garden, situated about 280 mètres (840 feet) above the sea. It is a very curious species (see fig. 51, p. 151), with large and very broad, bright green, undulate, thick-ribbed leaves, and large, blackish-purple, scentless flowers. It has a purple, oblong, undulate spathe, which is olive-coloured outside and in; a little shorter than the blackish spadix. The pollen is white, and the inferior part of the spathe tightly closed. Padre Giraldi found it himself in humid places in light woods in the North of China, near Ui-shan. The fact that the climate there is cold is proved to me by the plant, which never begins to flower before the end of June. This year it was even later in flower than it was last year. It seems spring to this Typhonium in the hottest summer weather in Naples, when it is 30° Reaum. in the shade (100° F.), and the sun shines every day; it then thrives rapidly, and the leaves and flowers are completely expanded in about six days. It grows best in deep shade, where the leaves become large and fine; but it also does well in the sun. The bulbs are large and globose, not unlike some fungus, or the Truffles. As these bulbs are easily grown, and are certainly rich in starch, they would be valuable also, properly grown, as a vegetable, similar to Taro. Typhonium giganteum var. Giraldi is certainly hardy in Sweden also, as it proves to be native in the mountains of a country with a severe winter climate. *Ch. Sprenger.*

ORCHID NOTES AND GLEANINGS.

BOLLEA CŒLESTIS.

FROM M. Otto Froebel, of Zurich, comes a remarkable lot of flowers of this beautiful species, the different flowers showing great variation of colour. The flowers are all of about 3 inches in width, and of a fleshy texture, and exhibiting alike the large, fleshy column, and thick ribbed labellum; but the colouring varies in a manner we have not previously remarked. The lightest-coloured one has the sepals, petals, and upper part of the column of a pale rosy-lilac hue; the large ribbed crest and under side of the column of a yellow tint. The typical form has the segments of a decided blue colour, with yellow crest; another is of a rose-purple colour, and the darkest, which M. Froebel considers his special variety, is a grand flower, with the sepals, petals, and upper part of the column of a bright violet or Tyrian-purple colour, the crest chrome-yellow. In a former sending were flowers of Pescatorea bella, another finely-coloured species of this section of Zygopetalum; the crimson and white P. Klabochorum, P. Dayana, and flowers of a very singular supposed natural hybrid between Bollea cœlestis and Chondrorhyncha Chestertoni, a totally different species with yellow flowers and fringed labellum. The hybrid seems to show traces of both the reputed parents, and is intermediate in colour, its livid blue showing traces of yellow in parts. Very few cultivators succeed with these plants, but M. Froebel says they give him no trouble; and instead of declining they gain in size, and are readily propagated by division if required.

SACCOLABIUM HENDERSONIANUM.

This charming little gem of an Orchid is again in bloom in the collection of Sir Trevor Lawrence, Bart., Dorking. Mr. White, the Orchid-grower at Burford, has a special talent for successfully cultivating pretty, rare, and frail species, which have a habit of "slipping through the fingers" of less watchful cultivators. The plant is only a few inches in height, and bears two spikes of delicately beautiful flowers, of which there are about thirty on each spike. The flower-spikes are erect, and the flowers, which are about three-quarters of an inch wide, are closely set on the stems. The sepals and petals are magenta-rose colour, the lip and rather large spur silvery-white, the whole surface crystalline in appearance when closely inspected.

The type plant and some others were brought from Borneo by Colonel Cruikshank in 1874, and were grown by Messrs. Henderson at St. John's Wood. It is reported to grow in North-west Borneo, in the neighbourhood of rivers, often overhanging them, and for preference on trees of Lagerstrœmia indica, dead specimens of which are often met with, covered with Saccolabium Hendersonianum, which for a long time, when they are in flower, make the dead trees even more beautiful than their own flowers could do when they were living. It should be grown on blocks, or in baskets suspended near the glass of the roof in a tolerably shady warm-house, and be kept moist all the year round.

DENDROBIUM MOSCHATUM, DUAL ODOUR.

Some time ago there were remarks in the *Gardeners' Chronicle* on flowers having more than one odour, and I contributed a note on that peculiarity in a specimen of Odontoglossum × Andersonianum hebraicum. The flowering of a plant of Dendrobium moschatum affords another instance. On its flowers first expanding they had a very strong odour of Turkey Rhubarb, and I had it tested by several persons, who all agreed as to its character, and that there was nothing pleasant about it. But on maturing, the odour changes to that of hay, and the same odour intensifies as the flower fades.

The odour of new-mown hay is peculiar to a number of Dendrobiums of this section, this species and some others giving off the odour from the dried pseudo-bulbs, leaves, and roots, as well as the flowers. Different records of them in their native habitats tell of the flowers smelling like Musk, an odour which I never detected in cultivated plants, of Rhubard and of hay; but two odours from the same flowers are not mentioned, although I have little doubt it is common in flowers of D. moschatum and its varieties. Probably the Rhubarb odour will often be found in the soft fresh expanded flower, and the hay scent, which is the natural odour of the whole plant, in the mature and fading flowers. Closely allied forms appear in gardens as D. calceolus, D. cupreum, and D. calceolaria; and some of your correspondents may have an opportunity of testing the odour at different stages of the flowers and communicating the results. *J. O'B.*

WESTONBIRT, TETBURY.

(*Continued from p.* 134.)

THE PLANT HOUSES are in a walled-in block, the long ranges of vineries and fruit-houses being situated chiefly under the wall. In the middle the span-roofed houses are used for growing such flowering and ornamental plants as Codiæums, Dracænas, Ferns, and florist's flowers, among which Hippeastrums take the lead. Their flowering and the quality of their flowers has often been remarked on in the *Gardeners' Chronicle*, and their condition at the time of our visit in the spring, when the bulbs were in flower, was noted in our issue of April 5, p. 230. At present the extraordinary vigour of their foliage strikes the beholder. Many of the bulbs have eight to twelve leaves, many of them being 3 feet 6 inches long, and very thick. Mr. Chapman is now experimenting with wide crosses, and one batch between Hippeastrum and Clivia has been secured, and another between Hippeastrum and Agapanthus umbellatus, which would be still more interesting as being between plants of different orders. If the flowers of these do not show the desired change of characters it is intended to cross them again, for the foliage seems to say that the first crossing was effected. A houseful of Caladiums and other foliage plants showed well-grown plants; and in tubs in this house were some blue and red Water-Lilies, brought by Mrs. Robert Benson from India, which exhibited promising characters.

In another house Cyclamens were noted in fine condition, and the long corridor connecting the older with the new block of glass-houses has the ornamental ironwork of its roof covered with various climbing plants, and many of them were in flower, the low staging being furnished with large Camellias, &c. The dome of this house used formerly to have its woodwork outlined by Wistaria sinensis trained over it; this being cut back or spurred every year for many years induced an extraordinary show of flowers, which made it a sight worth going far to see.

THE ORCHID HOUSES

for some time past, under the care of Mr. Alexander, were described in the *Gardeners' Chronicle* of April 26, p. 270, and a picture of a noble specimen of Vanda Kimballiana, which Mr. Alexander grows so well, was given as a Supplement to the issue of June 7. At our recent visit, we found the large collection of Odontoglossums in splendid condition, and taking well to the mixture of peat and leaf-mould which is being largely experimented with here. Not many were in flower, but the vigorous foliage borne by the large, sleek pseudo-bulbs was pleasant to behold, even on plants not in bloom. The Dendrobiums include all the showy species and hybrids, and all were in fine health. One of the sights of Westonbirt is the house of Dendrobium Phalænopsis, where a large quantity of this favourite Dendrobium makes a splendid show

of graceful spikes, with flowers varying from the rare pure white one to others with rose and purple flowers. The plants are grown suspended from the roof of a hot and moist house, where plenty of sunlight has access to them, and when at rest they are not kept cold. Thus, the large stock has been kept in vigour for five years, and show no sign of failing.

The Cattleyas and Lælias used formerly to be the least satisfactory of the large classes of Orchids at Westonbirt, but Mr. Alexander has thoroughly overhauled them, and they are now in a very satisfactory condition, and showing well for bloom, especially the hybrid Cattleyas, Lælias, and Lælio-Cattleyas, Cattleya aurea and C. Warscewiczii, of which there are large masses.

Among Orchids in bloom were several fine specimens in the lobby set aside for them of Sobralia, Miltonia vexillaria in several fine varieties, including the dark crimson-tinted centred variety superba. The raising of hybrid Orchids is being successfully pursued at Westonbirt, and many promising batches, chiefly of Cypripedium, are doing well.

GEORGE DON.

George Don was born in the parish of Muirhead in 1764, and was baptized in October, his father being Alexander Don and his mother Isobel Fairweather; both parents were descended from respectable farmers in the parish, and his father was a shoemaker or currier, who afterwards settled in Forfar. George Don received the ordinary elementary education at the parish school. He had a natural turn for mechanics, and acquired a taste for reading and observation, but his real education was got out of doors, in the fields and by the loch-side, and from his boyish days he took delight in noticing the minute characters of such birds, insects, and plants as came within his reach. He wrote a bold hand, and his style was clear and vigorous. He was apprenticed to a clockmaker in the town of Dunblane, and there formed his first *hortus siccus*, consisting of all the flowering-plants and mosses which he could collect in the neighbourhood. When he became a journeyman he removed to Glasgow, and there he generally worked five days a week at his business, being able to make a clock in that time, and the rest of the week was devoted to botanical exploration; occasionally he stole an extra day or two, penetrating into the Highlands as far as to Ben Lomond or Ben Lawers. He afterwards went as a gardener to Dupplin Gardens, where a relative was in charge, and there he spent some years, using his scanty leisure to explore the Ochills and even the spurs of the Grampians, thus obtaining a good knowledge of the local flora. On one of these expeditions he met Caroline Stewart, an active energetic woman, to whom he was afterwards married.

On leaving Dupplin he went southwards, spending a short time near Bromsgrove, in Worcestershire, in 1784, then returned to Edinburgh, where he became friendly with Messrs. Mackay and Dickson. About 1790 he settled at Forfar, and with the small sum of money he and his wife had saved, leased at a low rent, from Mr. C. Gray, of Carse, two acres of land, on the condition that he should build a cottage of certain dimensions within a limited period. This piece of ground, which he called Dove Hill, sloped to the west into what at one time had been Forfar Loch. Here he formed a large artificial pond, which he stocked with aquatic plants and fish, leaving room for a broad border, in which the native plants were arranged according to the Linnean

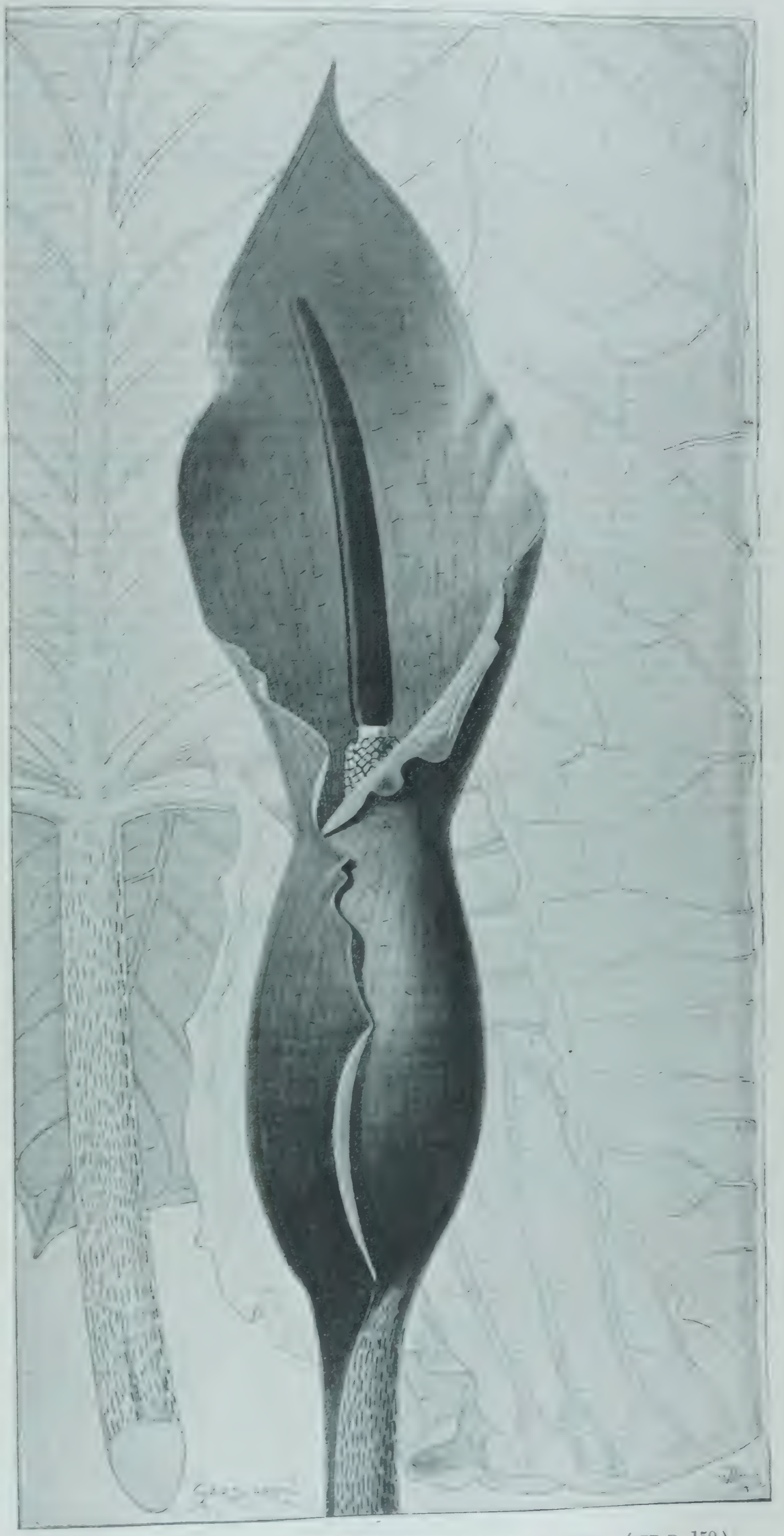


Fig. 51.—Typhonium giganteum var. giraldii: a hardy aroid. (see p. 150.)

system, and grown in their appropriate soils. In addition he rented several acres of land as a nursery for young trees; but it is said he gave more time to his botanical treasures than to the more profitable cultivated sorts. About this time he was particularly eager in exploring the Highlands, and not the least interesting of his discoveries is that of the beautiful district of Clova, which he first made known to the botanist. He occasionally absented himself for a week at a time, his plaid, and a bag of oatmeal or some bread and cheese sufficing him for shelter and sustenance; and he lost count of the days in these toilsome expeditions, so that it is said he once presented himself at the manse of St. Vigeans laden with specimens on a Sabbath morning as the occupants were going to kirk. There he met his friend the minister, and asked him: "What day's, fast or Sabbath?" He got his answer, and replied, "Man, I have lost count, but if I had my hands and face washed I would gang to the kirk too." He was shown to a bedroom for this purpose, but when Mr. Muir, the minister, went to call him he found him fast asleep!

Not only Clova was repeatedly worked, but he visited the distant Ben Nevis, where he gathered Sagina alpina. When on Ben Lawers in 1793, he observed the long-legged plover, and gathered Arenaria sulcata, &c. For these long rambles he was especially fitted, being stalwart and blessed with great powers of endurance, often journeying without breaking fast for a period of twelve hours. He would bring home a heavy burden of plants for his herbarium or roots to be planted in his garden, or, as was frequently the case, for sale to correspondents scattered over Britain. One of these correspondents was the Countess of Aylesford, who had set herself the task of making water-colour drawings of British plants, and she early enlisted the aid of Don. The drawings are now in the possession of a descendant, the Dowager Countess of Dartmouth, and the plants, instead of being thrown away, were kept, and are now in the collection of another descendant of Lady Aylesford's—my friend, Miss C. E. Palmer, of Odiham—and an examination of them confirms my opinion as to the *bona fides* of Don. He sent many specimens to Sir J. E. Smith, which are figured in *English Botany*, and to Dr. Goodenough, afterwards Bishop of Carlisle. It is said that he once received a visit from the Bishop, who, being at Forfar, and inquiring for Mr. Don, was first taken to the house of a Colonel Don, and finding that was not the man, he was conducted to the botanist, whom he found busy at work, and with whom he was soon in cordial conversation, to the wonder of his guide. Dr. Neill also relates that—

> Being on a pedestrian excursion along the east coast, it occurred to me that Forfar ought to be visited for its remarkable botanical garden and its owner, whose fame was familiar to me, owing to my intimacy with his regular correspondent Mr. John Mackay, of the Leith Walk Nurseries. On reaching Forfar towards evening, I soon found Don's garden, and entering inquired of a very rough-looking person with a spade in his hand, whom I took for a workman, whether Mr. Don was at home. The answer was, "Why, sir, I am all that you will get for him." Having apologised in the best manner I could, I stated that when I left home I did not anticipate a visit to Forfar else I could have brought a letter of introduction from Mr. John Mackay. Don pointed to my botanical box and immediately said, "That is enough for me." . . . Next morning at six he conducted me to Restennet Moss, where I had the great satisfaction of procuring a living patch of Eriophorum alpinum, and a number of fine specimens for drying. The Moss was at this time partially drained, for the sake of a rich deposit of marl, but at one end there was still sufficient marsh for the growth of Cladium Mariscus and Eriophorum angustifolium, and of course for the rare E. alpinum, which grew in the drier and firmer part of the Moss.

At the end of the year 1792, Sir J. E. Smith and Mr. James Brodie, of Brodie, strongly recommended Don to Prof. Rutherford, of Edinburgh, as a Superintendent of the Botanic Garden there; he was accordingly appointed, and removed to Edinburgh, leaving his Forfar garden in the care of his father, who was himself a great cultivator of flowers for amusement, but followed the trade of a currier. Don only remained three years at Edinburgh, as the relations between the Professor and himself became strained, for while Don had comparatively little experience of stove-plant cultivation, there is no doubt his botanical knowledge was far in advance of the Professor's. During his residence in Edinburgh he attended nearly all the medical classes, with the view to ultimately following that profession, and on his return to Forfar in 1795, it is said, he started practice; but his love of botanical rambles told heavily against him, and, as he was so frequently away when wanted, his practice gradually dwindled.

In 1803 he was elected an Associate of the Linnean Society in recognition of his services to botany. In 1804 he began the publication of a *Herbarium Britannicum*, which was dedicated by permission to Sir Joseph Banks, then President of the Royal Society. Four fasciculi, each of twenty-five plants, were to be issued yearly, and these were to contain a due proportion of rare alpines.

"Since he first began his botanical excursions into the Highlands of Scotland, in the year 1779, he is confident (and he hopes he may mention it without the imputation of vanity) that he has traversed more of the Caledonian Alps than any other botanist has ever done. He has repeatedly ranged over the great mountains of Angusshire which surround the great district of Clova, where no one on a similar pursuit has ever preceded him. He has also searched the vast range of mountains which stretch about sixty miles through the district of Knoydart, in Inverness-shire, a region which had never before, nor has since, been examined by a botanical eye. He is the only botanist, too, who has explored the lofty mountains of Cairngorm and the great hills of the neighbourhood." So he wrote in his preface.

As time went on, Don's business became more and more scanty until in 1812 he had to come to some sort of arrangement with his creditors, and from this blow he never recovered. He came home in the autumn of 1813 from one of his excursions, labouring under a severe cold, which he neglected; he grew worse, and a suppurating sore throat followed, which caused him excruciating agony for six weeks, when he succumbed in the January of 1814—he and his family being, during his last illness, so poor as to literally depend for their daily bread on the charity of the neighbours. His funeral was one of the largest that had ever been seen in Forfar, then having a population of about 5,000; the whole town as well as many friends and acquaintances from the country followed the coffin to the grave in the churchyard.

Through the efforts of Dr. Neill, Mr. Booth, and Sir J. E. Smith, a sum of money amounting to £80, was collected, and this was remitted to the widow so that she was enabled to bring up her children, six in number. The eldest, a girl, died shortly after her father. Of the five boys, three became nurserymen; but David and George, having considerable ability, struck out new paths, the former eventually becoming a celebrated botanist, and secretary to the Linnean Society. Mr. Druce, from whose address to the Pharmaceutical Conference at Dundee we extract these particulars, goes on to enumerate the discoveries made by Don, and to vindicate his memory from the unjust accusations made as to his good faith.

THE CEDAR OF LEBANON IN SWITZERLAND.

WITH reference to your remarks, published on July 26 last, concerning the Cedar of Lebanon at Enfield, I am pleased to tell you that we have in Geneva two of the most ancient of these Cedars known in Europe (fig. 52, p. 153). The two fine Cedars at Beaulieu, near Geneva, are known and admired by all tree-lovers. They were planted in 1735 by the Baron de Sellon, the then proprietor of the estate. They measure 32 and 34 mètres (about 104 and 118 feet) in height, and have widely spreading branches. There is a tradition in Geneva that these trees were brought from Lebanon by Bernard de Jussieu, and everyone believes that they were the first brought to Europe. After the article in the *Gardeners' Chronicle*, this idea will be discredited, and the story of the introduction of these Cedars by Jussieu considered to be a myth. Since 1662 Cedars have been grown in England, and it seems very probable that our Geneva Cedars may have come from seed from those at Enfield. *Henry Correvon, Geneva.*

THE SPOTTED MELON OF LUCKNOW.

ON August 19, 1902, at the meeting of the Royal Horticultural Society in the Drill Hall, I exhibited four specimens of the Spotted Melon of Lucknow, which in that city is called "Chitla Kharboòza," i.e., Spotted Melon.

In the time of the kings of Oudh, this white-fleshed and delicious Melon was grown to great perfection. It was very sweet, and therefore did not require any addition of sugar. Native gentlemen are very fond of choice fruit, and in those days they managed to keep it true, so that a present of choice Melons would be highly prized by the king.

After the British occupation of Lucknow, somehow it was allowed to degenerate by crossing with other varieties sown in the same field, as, of course, in Lucknow Melons are grown in the open air, and on sandy soil, trailing on the ground. Last year I received some Melon seeds from the superintendent of the Government Horticultural Garden of Lucknow. The seed was mixed, and several varieties turned up, and among them this spotted Melon.

I made a selection, and sowed some again this year. Those exhibited were the result of some of this year's crop. It should be noted that this summer there has been practically little or no sun, but in spite of cloudy and damp weather, the Melons are sufficiently satisfactory. With a proper summer the result will be, I doubt not, very satisfactory.

In the first year I grew this Melon in large pots, placed on a stage in a glasshouse, and trained on sticks up to the glass. This year I planted them in the ground in a house facing south, and trained them in the same way. This fine Melon is very easily cultivated under glass. If started in heat, the sun will finish its growth and ripen its fruit, especially in the south of England. There does not seem any reason why this delicious Melon should not be largely grown in this country, and find its way in all the fruit shops.

It acquires its choicest flavour when, on ripening, it separates easily from its stalk, like a ripe Peach. If a ripe Chitla Kharboòza be cut open, the seeds scooped out, and some cream poured into their place, with a sprinkling of sugar, a new sensation in fruit flavours will be experienced. *E. Bonavia, M.D., Worthing, August* 20, 1902.

P.S. I have some spare seed of this easily-grown Melon of this year's crop. Should anyone care to try it, I shall be pleased to send him or her some. *E. B.*

REMARKS ON THE FRUIT CROPS.

(*See Summary & Tables, ante, pp.* 69 *&* 72—77.)
(*Continued from p.* 113.)

SOUTHERN COUNTIES.

BERKSHIRE. — Apples in this district are much below the average; with about a total of 30° of frost during the first ten days of May, this is not to be wondered at. Amongst our best varieties are Allen's Seedling, Early Julien, Worcester Pearmain, Lord Suffield, Frogmore Prolific, Cox's Orange Pippin, King of the Pippins, Colonel Vaughan, Ecklinville, and Gooseberry. *W. Fyfe, Lockinge Gardens, Berks.*

—— Concerning my own orchard, some few varieties of Apples, viz., Gladstone, Dutch Codlin, Worcester Pearmain, Keswick Codlin, King of the Pippins, and that excellent Apple and never failing bearer, "Pay the Rent," which I cannot get the nurserymen to introduce to the public, are among the best cropped. My Wellington's and Cox's Orange Pippin are failures this year, I am sorry to say. *R. Fenn, Cottage Farm, Sulhamstead Abbots, Reading, Berks.*

—— The fruit crops are on the whole this year most disappointing, although the prospects were at one time bright. A few varieties of Apple are cropping fairly well, notably Keswick Codling, Lord Grosvenor, and Lane's Prince Albert. Cherries, especially Morellos, are worse than I have seen them for years. *Wm. Pope, Highclere Castle Gardens, Newbury, Berks.*

—— The fruit crops in this neighbourhood are again disappointing, particularly as the bloom was exceptionally abundant. It suffered however much damage from the very unseasonable weather of the month of May, most of the flowers of the early varieties of Strawberries being cut off, and many of those that had not opened as well, and the cold sunless weather favoured the occurrence of a great deal of blight on all kinds of fruit, Currants being very much affected. *J. Howard, Benham Park Gardens, Newbury.*

DORSET.—The fruit crop in this neighbourhood generally is under average, with the exception of Peaches, Nectarines, and bush fruits. Strawberries have been abundant and of excellent flavour. Apples in orchards set well, but appear to have been blighted, and have since fallen off, especially early sorts. *C. W. Bloye, Pinhay, Lyme Regis.*

—— Speaking generally, the fruit crops hereabouts are the worst I have ever known, Peaches, Nectarines, and Raspberries alone being quite satisfactory. Plums on sheltered walls are also an average crop, trees of Victoria in particular being heavily laden, but on bush and standard trees the crop is very light, and aphis has been dreadful. Apples are a miserable crop, and the trees are dreadfully blighted and miserable looking; Pears also are scanty and very poor. Cherries, both sweet and Morello, are under the average, and the trees are crippled with black aphis. Apricots are a very light crop; the bloom-buds being in a forward state, they dropped after the spell of wintry weather we had in February. Of bush fruits, Gooseberries are almost a failure; Red Currants are a good crop, and very clean on north walls; Black Currants poor, being much blighted; Strawberries better than the promise at one time, but crown flowers on the young plants were killed with the frosts in May. Cobs and Filberts very plentiful; Walnuts scarcely any. *T. Turton, Castle Gardens, Sherborne, Dorset.*

—— The Pear is a little better than the Apple crop, the varieties Beurré Diel, B. Rance, Madame Treyve, Marie Louise, Seckle, are fairly well cropped in some instances; also Josephine de Malines. The best crops of Plums are found on Bryanston Gage, Denniston's Superb, Golden Drop, Kirke's, Orleans, and The Czar. *Thos. Denny, Down House Gardens, Blandford, Dorset.*

KENT.—The gales and frosts of May 8 to 15 destroyed a bright promise, and the trees are badly infested with aphides. Except Nuts, Apples, and Strawberries, all crops are short in Kent. *George Bunyard, Maidstone.*

FIG. 52.—CEDAR OF LEBANON AT BEAULIEU, NEAR GENEVA.
(SEE P. 152.)

—— Fruit crops are bad, the spring frosts spoilt a great deal, but the feature of the year has been insect attack, winter moth, caterpillar, and aphis, have been beyond description bad, and we shall suffer from the effects for several years. Early in June, there were whole plantations in my parish without a green leaf left on them, from caterpillar. *B. Champion, Mereworth.*

MIDDLESEX.—We had a magnificent promise of fruit of all kinds up to the night of May 14, and morning of the 15th, when a very sharp frost practically ruined the crops. As we are only 24 feet above sea level, we are very subject to spring frosts. *S. T. Wright, Royal Horticultural Society's Gardens, Chiswick.*

—— Hardy fruits about here are very partial crops again this season, the long cold trying spring have to account for this, as most trees had a good healthy bloom and seemed to set well, but the excessively cold nights of April and May caused the young fruits to drop. There were fair crops on the walls and where the trees in the open had shelter, but in exposed places there are no fruits, and the trees are very blighty. *W. Watson, Gardens, Harefield Place, Uxbridge.*

—— The hardy fruit crop at Syon is a very poor one; many young trees have scarcely a fruit on them, especially Apples and Pears. A few kinds, such as Lane's Prince Albert, Frogmore Prolific, and some of the earlier Codlins, have a fair crop. Pears promised grandly, but the crop is thinner than I ever remember, here. Plums are peculiar; a tree here and there is good, whilst many trees have not a fruit. Small fruits also suffered

badly from late frosts, especially Gooseberries, which fell wholesale. Raspberry-canes were much injured, also the early bloom of Strawberries. *G. Wythes, Syon House, Brentford.*

—— I am sorry to say the fruit crop in this district is most unsatisfactory, except Plums and Strawberries. Apples and Pears suffered badly with the late frost. It has been a very unkind season. *W. Bates, Cross Deep Gardens, Twickenham.*

SURREY.—Owing to the very inclement weather during the first fortnight in May, fruit crops, with the exception of Pears, are very irregular; as although the flowering period was late, the spring frosts and bad weather were also late. The Pears had fairly good weather during flowering time, consequently they are a good crop. With this single exception, fruit in this locality may be termed poor, scarce, and very badly infested with aphis and other plagues. *W. E. Humphreys, The Grange Gardens, Hackbridge.*

—— The fruit crops this year are not all that could be desired; the prospects at the end of April were most promising, all trees showing well for heavy crops. May proved disastrous; on the 2nd we registered 5° of frost; 5th, 5°; 6th, 7°; 7th, 8°; 13th, 8°; 14th, 10°. This last frost did a great deal of damage to all small fruits, Gooseberries suffering the most, and all Strawberry flowers that were open were killed. Pears and Apricots also suffered badly. Apples look like finishing satisfactory. Peaches and Nectarines are doing well, free from blister so common in the leaf here, notwithstanding the cold spring. *G. Kent, The Gardens, Norbury Park, Dorking.*

—— Apples and Pears are under average, as also were all stone fruits, owing to late frosts. Small fruits, with the exception of Black Currants, are all good. Strawberries, with Raspberries, are very heavy crops. *W. C. Leach, Albury Park Gardens, Guildford.*

—— I do not remember when we had such a grand prospect for fruit as this year. Plums, Gooseberries, and Currants were well set, and Apples, Pears, and Strawberries in flower, and the flowers were very fine, when on May 13 we had a sharp frost which spoilt nearly all—the fruit dropped, the early Strawberry flowers were nipped, Walnut trees were blackened, so that there are very few Apples and Pears, and they do not seem to swell kindly, and the trees are filthy with fly. On the higher land they escaped much better. *C. J. Salter, Woodhatch Lodge.*

—— The fruit crops in Surrey, so far as they have come under my notice, are this year intensely disappointing. Apples are very thin; Pears in some places a little better; Plums on open trees very few, and trees much infested with aphis. Cherries are a fair crop, but rather late; wall fruits generally, because trees are protected, the best crop of the season; Gooseberries a fair though a moderate crop; Currants very poor, and greatly blighted; Strawberries a very fair crop, but early and late varieties all fruiting at once, hence the market is glutted. In a year of disappointments, the condition of the fruit crops is perhaps the greatest. *Alex. Dean.*

—— Apples bloomed abundantly, and appeared to escape the frost; but few set, and most of those have since fallen. Plums bloomed and set enormously, although a frost prevailed; but aphis quickly attacked the foliage, and now three-quarters of the crop is fallen, still, however, leaving a fairly average crop. Strawberries very abundant, but all the varieties ripening together. *W. Wilks, Shirley, Croydon.*

WILTS.—The prospect of an abundant crop of all kinds of fruits in this neighbourhood was quite as good, or even better than I think I ever before remember, until the disastrous weather that set in during the month of May quickly destroyed it. During this month there were nine frosty nights, the severest occurring on the 10th, 13th, and 14th, when the minimum temperatures recorded were 28°, 28°, and 25° respectively. We also experienced severe thunder, hail, and snowstorms, while the sky during the whole month was unusually clouded and overcast. The earth-temperature at 1 ft. deep was also 5° below the average for this month and the first half of June, so that when the sudden spell of hot weather set in during the last ten days of the latter month, all, even the hardiest fruit trees, suffered severely from exhaustion caused by inactive root-action, owing to this great and sudden inequality between the air and earth temperatures. The trees received a check, and consequently became an easy prey to insects, from the ill effects of which they are only now recovering. *T. Challis, The Gardens, Wilton House, near Salisbury.*

ENGLAND, N.W.

LANCASHIRE.—The foliage of the Apple-trees has been devoured by caterpillars, consequently the fruit is crippled. Of Pears we have not any; they and Plums looked promising up to June 1, when we had a blizzard, and all the fruit, which were as big as Peas, fell off; they had probably been injured previously by continuous cold weather. Strawberries were a good average, but the wet weather the first fortnight in July spoiled quite half the early ones, and on all, fruit the size of Filberts are decayed; most of the mischief was done on the 8th, 9th, and 10th, which were rainy and muggy. *Wm. P. Roberts, Cuerden Hall Gardens, Preston.*

(To be continued.)

NEW PARK AT WELLINGTON, SOMERSET.

BY the good feeling of Messrs. Fox, Bros. & Co., of Wellington, Somerset, that town is being provided with a public park, all ready laid out, and complete in every detail, without the townspeople being put to any expense in the matter. The designing and laying-out of this park was entrusted to the firm of Robert Veitch & Son, of Exeter, who commenced operations in July of the present year. The plan (fig. 53, p. 155) was furnished by Mr. F. W. Meyer, the landscape gardener to the firm, and it gives a good general idea of the proposed laying-out and planting.

A main feature consists of a row of fine old Beech-trees. On the plan these venerable trees, which are of great size, are indicated on the north side, eighteen circular dots of the approximate size (according to scale) of the stems. A broad gravel walk 21 feet wide is completely arched over by the overhanging branches of these Beeches, and forms a shady promenade with many recesses for seats.

This avenue being straight becomes a fitting base-line, from which to project a geometrical flower garden having a fountain in the centre, but beyond this parterre the paths and groups of trees and shrubs are of an irregular character, so as to harmonise in a gradual manner and amalgamate with the surrounding landscape. By means of a sunk fence or ha! ha! a visible boundary fence is avoided, and the adjoining fields with their trees appear as a portion of the park, which though scarcely 5 acres in extent will nevertheless appear to be much larger.

The ground slopes naturally about 20 feet from east to west. The overflow of water from the fountain will be utilised to form a small irregular pond in the lower part of the grounds. The ground around the bandstand (in the south-west corner) will be raised to form a level plateau, and rows of Lime-trees, affording shade to the seats, will be planted.

Not far from the south-east entrance is a "shelter," surrounded by beds of Ericas, and adjoining are two beds of Rhododendrons. A caretaker's lodge is planned for the north-west corner, and in connection with this a space is provided for cultivating plants for the beds and borders.

THE GENUS ASTILBE.

(Continued from p. 95.)

IT will be of interest to consider the whole genus Astilbe, which contains several beautiful species well known to gardeners. Botanically, the genus is of great interest, as it forms the connecting link between the two great families—Saxifragaceæ and Rosaceæ; indeed, between it and Aruncus the dividing line is almost evanescent. Practically, these two genera are distinguished as follows:—In Aruncus the stamens are twenty or thirty; while its carpels are free, generally three in number. They vary in number, however, a great deal—two, four, five, six, and eight occur. In Astilbe the stamens are definite—five, eight, ten, or twelve in number; and the carpels, commonly two in number (occasionally three), adhere together at the base. Rodgersia is also very close to Astilbe, and I shall point out the differences in another paper; now it is sufficient to say that the leaves of Rodgersia are digitate, or quasi-digitate, and bracteoles are absent; whereas in Astilbe the leaves are bi-ternate or simple, and bracteoles are present.

The genus Astilbe was founded by Don in 1825, and in the first species described no petals occurred. In 1834 Morren and Decaisne described another species, and as it had petals they made for it a new genus—Hoteia. Now-a-days, the presence or absence of petals is not considered of generic value in the present group of plants, and Hoteia as a name has been abandoned.

Ten distinct species of Astilbe are known,* occurring in China, Japan, India, Java, the Philippines, and N. America. Two of these species differ markedly from the others in having simple leaves, but unfortunately little is known concerning them. There is no material of these two species at Kew. The occurrence of simple and compound-leaved species in the same genus is of course well known, as in such genera as Berberis and Acer; but Cimicifuga, which has similar foliage to Astilbe, affords an interesting parallel in the remarkable Chinese species, Cimicifuga simplex, Maxim, which has simple leaves. The two species with simple leaves are:—

1. *A. Stoliczkai*, Kurz., *Seem. Journ. Bot.*, v., 240.—This occurs in the N.W. Himalayas. Mr. C. B. Clarke in *Flora of Brit. India*, ii., 389, excludes this species from Astilbe on account of the simple leaves. Dr. Stapf tells me that he examined the plant (presumably a specimen from Calcutta), and that it is a true Astilbe. There was, however, on the specimen only one cauline leaf, and that the uppermost one.

* There are eleven species now known. See concluding part of this article.

2. *A. simplicifolia*, Makino, *Tokyo Bot. Mag.*, No. 75, p. 103.—This seems from the description to be a true Astilbe; but in all the various lists of the plants of Japan, since published by Matsumura, this species is not recognised; nor can I find it under any other genus.

With regard to the ordinary species of Astilbe which have compound leaves, they are eight in number, and can be arranged in two divisions, according as petals are present or absent. The leaves in these species are always bi-ternate, or tri-ternate, and sharply serrate, whilst the flowers are in racemes or spikes disposed in a panicle.

A. Species with petals, which are generally five, sometimes four or six; stamens ten, eight, or twelve.

3. *A. rubra*, Hk. f. et T., Khasia and Yunnan. Figured in *Bot. Mag.*, t. 4959. Introduced in 1851.—Large plant, 6 feet high. Stem, petioles, and rachis, covered with long brown hairs. Leaflets obliquely ovate, mostly cordate at the base, with acuminate points. Panicles compact, robust; the pedicels are short; petals pink, linear, thrice the length of the calyx; fruit large, with short beaks; stamens ten.

4. *A. chinensis*, Maxim.—China, Mongolia, Japan. Variable in stature, indumentum, and length of petals; leaflets ovate or ovate-lanceolate, subcordate or attenuate at the base; panicles narrow, more or less dense; pedicels very short; petals narrowly linear, three or four times the length of the calyx, white, lilac, or violet; stamens ten; fruit small, with short beaks.

5. *A. Thunbergii*, Miq.—China, Japan. Figured in *Floral Magazine* (1881), N.S., t. 457. Introduced in 1878. Leaves much the same as those of the preceding species; the panicles are loose, broadly pyramidal, and very compound; pedicels somewhat shorter than the calyx; petals white (sometimes changing to pink), linear-spatulate, about two and a half times the length of the calyx; fruit small, with long beaks equalling the carpels in length; the stem, &c., is silkily hairy.

6. *A. japonica*, Miq. — Japan. Figured in *Bot. Mag.*, t. 3821, as Hoteia barbata. The figure of Spiræa barbata in *Bot. Reg.*, t. 2011, also belongs to this species; but in the description there, and in the *Gardeners' Chronicle*, 1871, p. 547, it is erroneously stated that the plant occurs in Nepaul. It was introduced by Von Siebold into Belgian gardens sometime before 1837. It is a small plant, about 2 feet high, hairy on the petioles and at the nodes. The leaflets are characteristic, being lanceolate, with an acuminate apex and a long, cuneate base. The panicles are large and branching; the pedicels are longer than the calyx; the petals are white, linear-spatulate, and twice as long as the calyx; stamens, ten. The shape of the leaflets and the long pedicels neatly distinguish this species, of which I have seen no fruit. Several varieties have been evolved by cultivation, notably variegata, which is the Spiræa reticulata of gardens. This variety is prettily variegated with yellow, and has panicles denser than in the type. The variety foliis purpureis, with purple leaves and stems, was introduced in 1885.

7. *A. decandra*, Don.—North America. Introduced in 1812. The leaflets are ovate, lobed, cordate or abrupt at the base. The flowers are sessile. Petals white, small, linear-spatulate, scarcely as long as the calyx. Stamens ten. Fruit small and beaked.

8. *A. philippinensis*, Henry, n. sp.—This is the species occurring in the Philippine Islands, of which there are two sheets in the Kew Herbarium—Vidal's numbers, 1352, 2221, and 2718. This plant has been confounded with A. rivularis, Ham., in Vidal *Pl. Vasc. Filip.*, p. 124; but it is quite distinct in the presence of petals and the different fruit. It is a slender, unbranched plant, 1 to 3 feet in height. The stem and petioles have scattered brown hairs, which are longer and denser at the nodes (bases of petioles and petiolules). The leaves are bi-ternate, but the upper division is often five-foliolate instead of three-foliolate. The leaflets are variable in form, but are mostly ovate-lanceolate, prolonged into an acuminate apex, and having the base obliquely cordate. The terminal leaflet has occasionally a cuneate base. The leaflets are serrate, hard and firm in texture, and with scattered bristles on both surfaces. The inflorescence is closely beset with a glandular pubescence. The panicles are small and loose. Pedicels nearly as long as the calyx. The petals are lanceolate-spatulate, rounded at the apex, and about twice the length of the calyx. Stamens eight. Fruit small, with short beaks.

B. Species with compound leaves, petals absent. The absence of petals is a constant character in the following two species. Petals are occasionally absent in A. decandra.

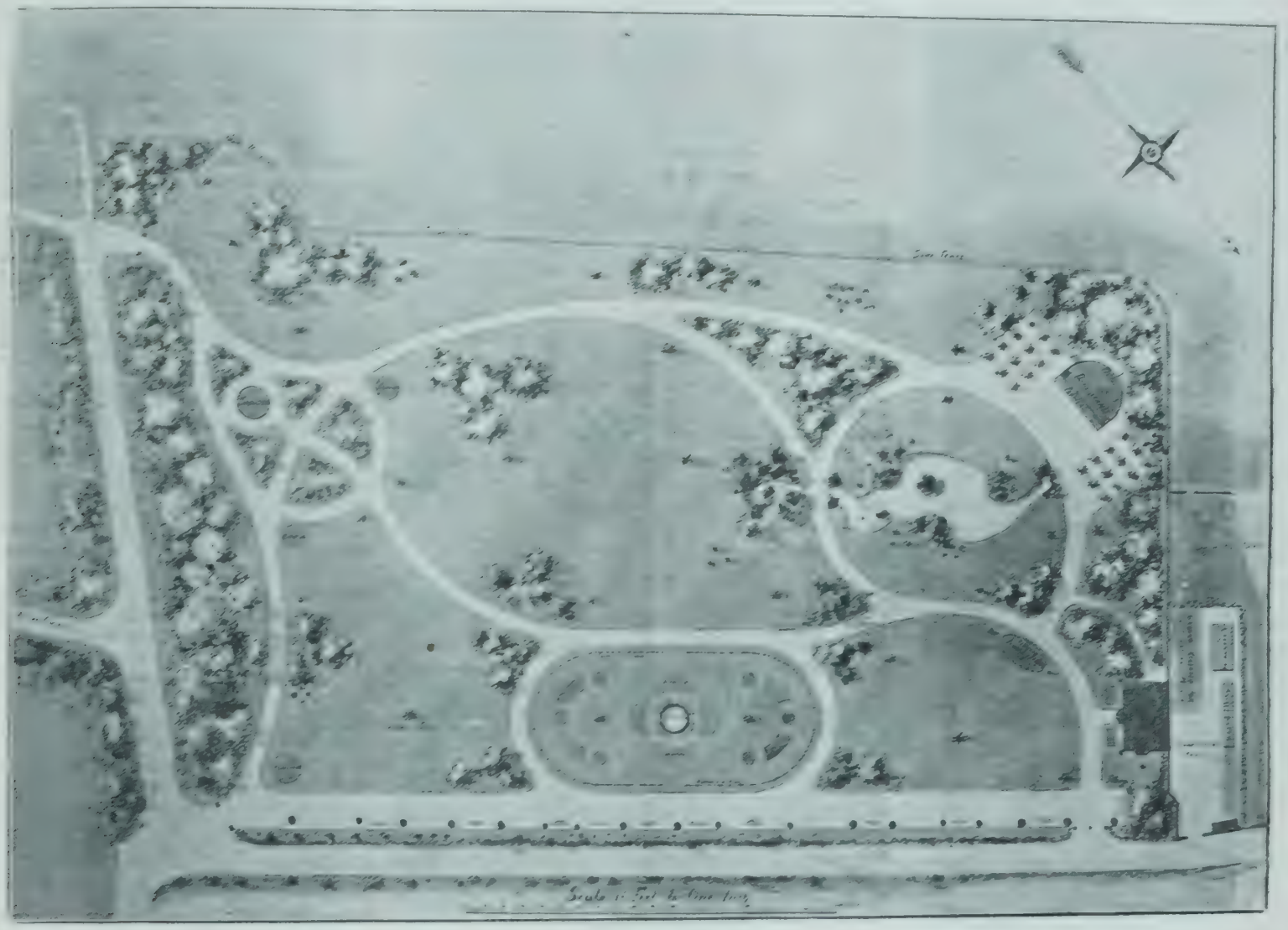


FIG. 13.—PLAN OF PARK AT WELLINGTON, SOMERSET. (SEE P. 154.)

9. *A. rivularis*, Ham.—Himalayas and Yunnan. This plant has been introduced into cultivation. Though it is the Spiræa barbata of Wallich, it is not the plant figured under that name in the *Botanical Register*, t. 2011. It is a very large plant, with long, yellow hairs on the stem and leaves, and especially about the bases of the petioles and petiolules. The leaflets are large, ovate, acuminate; the lateral ones being obliquely cordate at the base, while the terminal one is generally cuneate at the base. The stamens are five or eight. The panicles are large, with greenish-yellow flowers. Pedicels short. The ripe carpels are large, with short, deflexed beaks.

10. *A. speciosa*, Junghuhn.—Occurs in Java. A very large plant, with long red-brown hairs on the stem, petioles, and petiolules, especially about their bases. The leaflets are obliquely ovate, cordate, with acuminate apex; brown beneath, and very large. The stamens are eight or ten. The ripe carpels are very large, broad at the base, and with short beaks.

In addition to the foregoing species, which are all wild plants, a garden hybrid, named Astilbe Lemoinei, was introduced in 1895. It is described as having leaflets, which are broad-oval, dentate and crimped, satiny-green, and hairy. The flowers have white petals and ten pink stamens, and are very numerous in plume-like clusters disposed in loose panicles, 1½ ft. long. This is reported to be a hybrid between A. Thunbergii and Spiræa Astilboides (see Lemoine in *Rev. Horticole*, 1895, p. 566); but Mr. Nicholson doubts this, and considers that it is derived from a cross between A. Thunbergii and A. japonica. It appears that Spiræa Astilboides, which was introduced by Bull in 1879, and figured in the *Gardeners' Chronicle*, 1880, ii., p. 113, is not now in cultivation, and the plant which passes under that name is simply a form of Astilbe japonica.

The following is a list of synonyms and of various species which have been considered to belong to Astilbe, but which are preferably referable to other genera; and the *Index Kewensis* requires correction accordingly in some details:—

A. biternata, Britton, in *Bull, Torrey Club*, xx., 475, is the same as A. decandra, Don.

A. odontophylla, Miq.=A. chinensis, Maxim.

A. barbata, Hort.=A. japonica, Miq.

A. Davidi, Hort.=A. chinensis, Maxim.

A. Aruncus, Trev.=Spiræa Aruncus, L.

A. pinnata, Franchet, in *Pl. Delav.*, p. 231=Rodgersia pinnata, Franchet. *Pl. David*, ii., 214.

A. podophylla, Franchet, in *Pl. Delav.*, p. 231, is, so far as the Chinese Plant is concerned, the same as Rodgersia æsculifolia, Batalin.

A. podophylla, Baillon, *Hist. Pl.* iii., 332=Rodgersia podophylla, A. Gray.

A. polyandra, Hemsley, *Index Fl. Sin.*, i., 265=Spiraea Aruncus, L.

A. Henrici, Franchet, in *Prince Henri d'Orleans' Du Tonkin aux Indes*, p. 378=Rodgersia Henrici, Franchet in *Rev. Horticole*, 1897, p. 194.

The Spiræa japonica of gardens is often a name for Astilbe japonica, Miq. *Augustine Henry.*

(To be continued.)

ENQUIRY.

SPENT HOPS AND MUSHROOM-CULTURE.—A correspondent, writing under initials "J. G." enquires if any reader of the *Gardeners' Chronicle* will kindly inform him if spent Hops, being mixed with good, short stable-manure, would be detrimental to its value for Mushroom-growing.

CULTURAL MEMORANDA.

STRAWBERRY PLANTS.

I FIND it to be very necessary to set out on a border facing south a considerable number of young plants for furnishing fruits in succession to the forced plants, and such plants should be planted without further delay, it being essential to have them thoroughly established before winter sets in. By this method ripe fruits are usually obtainable several days before fruit ripens on older plants in other parts of the garden. Should late frosts occur when the plants are in bloom, as was the case this year, the area planted being small, it is easily covered with mats, canvas, &c. I plant for this purpose Royal Sovereign and Vicomtesse Héricart du Thury. The land is well manured and deeply dug, and the manure well incorporated with the staple. The plot to be planted is made somewhat firm by treading it, doing this when the soil is dry, but land that has been prepared some weeks previously usually gets consolidated, and needs nothing further in the way of preparation, excepting to afford it a plentiful dressing of fresh soot, and to rake it into the soil. I have for many years prepared and planted a few hundred plants for supplying early fruits, and am satisfied with the results I have obtained, the crop being invariably good, and the fruits large and well coloured. The distance at which the plants are set out is 1¼ ft. Frequently a bed is not destroyed till the plants have borne fruit for two years, alternate plants being cut out when the first crop is finished. All Strawberry-beds recently planted should be kept quite clear of weeds, and the plants of runners, and water should be afforded when required. *H. Markham, Wrotham Park Gardens, Barnet.*

The Week's Work.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Iris.—Any of the early-flowering bulbous section of Irises, as soon as the bulbs come to hand, may be planted in the borders. Iris reticulata and I. r. major thrive in any light, rich sandy loam, in well sheltered positions, exposed to the sun, provided the soil is well drained. Excavate holes, and after preparing the soil, partly fill-in and make firm, and bring it up to within about 3 inches of the ground-level, then place at the bottom the number of bulbs to form a clump, putting them at 2 inches apart, sprinkle some silver-sand over them, and cover with the rest of the soil.

Pentstemons.—Choice varieties should be propagated from cuttings of the side-shoots, which are plentiful at this part of the season. Insert them, after cutting them through at a joint and taking off a few of the lower leaves, in shallow pans filled with sandy soil, and place these in a cold frame or hand-glass in a position slightly shaded from bright sun, and keep close. As soon as a few roots have formed, prick them out 2½ inches apart in a mixture of sandy loam and leaf-mould in a cold frame. With ordinary attention these cuttings will form nice plants for setting out in the spring.

Delphiniums.—Cuttings of the young shoots of choice varieties may now be taken, and inserted singly in sandy soil in small pots, which place in a cold frame, and keep close; they will make good flowering plants next year.

Lawns.—At this season worms disfigure the lawn with their casts, and in order to lessen the evil, take common salt, about 2 handfuls, and 1 oz. of corrosive sublimate, both of which dissolve in hot water, and mix this in 9 gallons of water, and apply after rain. Another method is to put a peck of quicklime in 30 gallons of water, stirring it well, and allowing it to stand till clear; then apply carefully and regularly over the grass, and the worms will come to the surface, when they may be collected, together with their casts, with a birch-broom, and removed. Lawns should be rolled frequently with a heavy roller.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Cochlioda Noetzliana.—This beautiful inmate of the cool Orchid-house may be repotted or surfaced at this season, whichever is necessary. In carrying out the work, the upper layer of materials should be removed, so as to afford the new roots fresh, sweet material upon which to seize. The compost should consist of equal quantities of the turfy parts of peat and chopped sphagnum, these being well mixed together, the fern-rhizomes and roots taken from the peat being employed as drainage. Pans are to be preferred to pots for this plant, and these should be hung in the Odontoglossum-house. When the plant is developing freely at this season, water should be liberally afforded.

Cattleya Bowringiana.—This plant may be repotted or surfaced at this date, employing a compost consisting of equal parts of peat-fibre and chopped sphagnum, and an efficient drainage with clean or new crocks placed in an upright position, and above which fern rhizomes may be laid. By adopting this method of draining the pots, the needful amount of moisture is retained, which so soon evaporates when crocks alone are used, compelling the cultivator to apply water frequently, with the consequent evil of the early souring of the materials. The plant being deep rooting, pots are to be preferred to pans, excepting in the event of a specimen being very large, when a pan should be given, and one that has but few perforations. Plants which have been repotted need water to be afforded carefully, till the roots have begun to spread in the new compost. Vigorous plants that have been surfaced with fresh compost may be afforded water freely, till growth is finished. A suitable position for the plants is with the long-pseudo-bulbed Cattleyas in the Cattleya-house, the greater amount of sunshine admitted to that quarter being conducive to firm growth. Constant watchfulness is necessary, or water will get retained in the bracts on the side of the new pseudo-bulbs. The sides of the pots containing the plants should be often damped, and slight syringings overhead given.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Chrysanthemums.—These will now require attention, and the taking of the bud where big blooms are looked for must be carried out; earwigs should be trapped, and green and black aphides destroyed by dusting with tobacco-powder, syringing the powder off again in a few hours. Spraying with Abol or tobacco-water is likewise recommendable against aphis. Keep the growths well tied in, the ties being fixed at rather further than 6 in. from the points of the shoots, which are safer when allowed to sway slightly with the wind. As growth is rapid at this date, tying requires almost daily attention.

Primulas.—The main batch of Chinese Primulas being ready for putting into the pots in which they will flower, prepare a mixture of loam, leaf-mould, decayed horse-droppings, and sand, and in the operation of potting take care not to break the stalks or the leaves, as the loss of even a few leaves gives the plants a ragged appearance. Pot firmly with the hands only, and set the plants deep enough in the soil as to be held rigid without any aid from pegs put round about the collar. Afford plenty of space between the plants when they are placed in the cold frame

When fruits occur, remove them to the greenhouse or a greenhouse pit for the winter.

Cucumbers.—Plants that have been in bearing for some time will require a liberal supply of water at the roots, and a moist atmosphere must be maintained by frequent syringings. Shade from bright sunshine, and admit air freely when the temperature rises to 80°.

Melons.—Plants that have been in bearing for some time will require a liberal supply of water at the roots, and a moist atmosphere must be maintained by frequent syringings. Shade from bright sunshine, and admit air freely when the temperature rises to 80°.

Pine-houses.—Where the second crop of fruit is swelling, maintain a moist atmosphere by damping the floors twice on bright days, and close the house at 80°, allowing the warmth to fall to 70° by nightfall; sprinkle the borders with an artificial liquid manure, afford plenty of water, and be sure that the shoots be not crowded together. When the fruit begins to ripen, cease to syringe the trees, apply air more freely, and maintain a drier air. When the fruit is gathered, keep the house warmer, so as to ripen the shoots, syringe the foliage occasionally, and let trees at rest have as much air and as full exposure as possible.

Peach-houses.—Remove as far as possible the roof-lights from the early forced trees, and thus allow the autumn rains to moisten the borders, and the cool air to check any tendency there may be to excite bud-development and bud-dropping. The bearing wood of Peach-trees from which the fruit is gathered should be removed, and this year it may be necessary to aid the maturing of the wood with fire-heat. If red-spider infest the foliage, afford the same a heavy cleansing with the engine, and dilute with tobacco-water. If the soil is of a rather light nature, and it is dry, apply water and diluted liquid-manure copiously. Unheated Peach-houses should be closed in the afternoons of bright days, with high temperatures, and the most made of what sunshine there is; sufficient air, however, being applied, as a close atmosphere is injurious to the trees and the fruits.

THE KITCHEN GARDEN.

By T. Tremow, Gr. to J. K. D. Wemyss-Hamilton Dundas, Esq., Duntarvie Castle, Dunfermline.

Cabbage.—Make a final sowing of these forthwith for standing over the winter in the seed-beds or rows. Should we get a warm autumn, the more forward plants will be large enough for autumn planting, and would go through the winter with fewer losses than those sown earlier. Owing to lack of sunshine, and the consequent coolness of the soil, the plants of the earliest sowings make slow growth, which can however be stimulated by stirring the soil with the Dutch-hoe. Sow seeds of Red Dutch Cabbage for spring planting. It is a mistake often made by gardeners to sow Red Cabbage seed earlier than the first week in September, as those plants which are strong enough to be set out in the autumn form a head too early in the following autumn: and most cooks prefer Red Cabbage after a few sharp frosts have occurred.

Onions.—In order to assist the ripening of the bulbs bend over the necks, laying the tops in such a manner as to expose the bulbs to the sun, a very essential matter in a wet season like the present. The silver-skinned Onions for pickling purposes should not be left in the ground any longer, but pulled up and dried, turning them over on the ground once or twice before removing them to an airy shed, and spreading them out thinly to obtain drying. When dry, clean and send them into the kitchen forthwith.

Runner Beans.—In the event of drier weather conditions setting in, and in shallow soils in particular, it will be as well to again afford water at the roots, large quantities of moisture being required by this crop in shallow, dry soils, otherwise the pickings will be scanty. Keep the tops pegged at about the height of the stakes, so as to prevent it getting entangled and excluding the light and air. In gathering the pods see that some is left to ripen seeds.

Spinach.—If the final sowing for the year is not yet made, let it be got in forthwith. A strong soil, if well-drained, suits Spinach, and a late sowing does well in such a soil, the leaves being double the size of plants grown in light soils. Thin early, leaving the plants from 3 inches to 4 inches apart, and afterwards ply the hoe between the rows, and hand-weed the lines of plants.

Tarragon and Chervil.—The winter supply should now receive attention, and cuttings of the former be taken and placed in 7-inch pots, which stand in a mild hot-bed. Chervil may be sown thinly in boxes out-of-doors, and protected with cold frames or a few handlights; or, what is preferable, take up some well-known seed-bags, and plant in boxes, which will only require glass protection during severe weather.

THE HARDY FRUIT GARDEN.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, East Budleigh, Devonshire.

Apricot-trees.—The fruit being cleared off, afford the trees a cleansing with the hose or garden-engine. Young trees of fruiting size which may not have borne much fruit will be making strong wood, and rather than use the knife very freely at the winter pruning, let the strongest shoots be removed at the present date; and root prune the trees early in the month of October, when full instructions for the operation will be given. With so much rain and cloudless weather, I have thought it prudent to remove the mulch from the roots of Apricot-trees; break up the soil to the depth of 2 or 3 inches; and use the Dutch-hoe at short intervals of time, letting in air and warmth.

Strawberry-beds.—Weeding must have frequent attention, and the runners should be removed, the ground being afterwards cleared of all weeds and rubbish. Plants carrying fruits should be raised upon forked sticks, or tied up with raffia, so as to prevent decay from dampness. The variety St. Joseph is fruiting well again this season at Bicton.

Preserving Fruit.—It will be necessary to protect the fruit from the attention of blackbirds, &c. In places where the kitchen and fruit gardens are surrounded by woods, it is necessary to put nets over Apple and Pear-trees at an early date, or much fruit will be damaged by the birds, and the wasps which come in their wake, the early-ripening varieties suffering most. Bottles of sweetened beer should be hung in the Plum, Peach, and Fig-trees where there are ripening fruits; these will capture large numbers of wasps and flies. As regards the specimen Pears, make round pieces of cardboard, with a small hole in the centre just large enough to take the stem of the fruit, and provided with a slit from the centre to the edge, so that it can be put over the fruit, and thus protect the base of the fruits from the pecking of the birds.

FRUITS UNDER GLASS.

By James Wheeler, Gardener to the Duke of Buccleuch, Dalkeith, Scotland.

Pine-pits.—The second division of Queen Pines should afford ripe fruits for some time yet; and the house must be kept rather dry and airy, but damping the paths twice daily, and maintaining a night temperature of 65°, affording less water than heretofore, and no manure-water to those in the ripening stage, but only to those plants with green fruits. The varieties Black Jamaica, Charlotte Rothschild, and smooth Cayenne, for fruiting next winter and spring, should be kept growing, but not with a very high temperature or moist air, which cause the leaves to get much drawn. A good deal of air may be afforded on bright days, and a night temperature of 65° kept, the bottom heat being 90°. Damp the paths sometimes every day, and aim generally at obtaining steady growth. Now is the time to take suckers of Queen Pines, pot them, after slightly trimming the bases, into clean, well-drained 5-inch pots, making use of turfy, friable loam, and not making it very firm in the pot. Plunge the suckers in a bed having a bottom heat of 90°, and the air of the pit at a mean warmth of 65°; shade from strong sun for a week or two. Apply no water, but only slight syringings, until roots form, and afford air when the temperature rises to 75°.

THE APIARY.

By Expert.

Sections, &c.—The continued wet weather will have had a bad effect on honey production, and in consequence the price obtained should be higher; and clean, well filled sections should fetch from 2s. to 2s. per dozen wholesale, and good run-honey from 6d. to 8d. per lb. A word now perhaps as to the handling of sections would be advisable. Many bee-keepers think that if the sections are full that is all that is required. This is a mistake, as some sections keep coming to market turned upside down, and with dirty marks over the tops and bottoms. As soon as they are taken from the hive, the tops of the sections should always be right side up: but in many cases if the bees are troublesome, they are placed down in a hurry; and split top sections perhaps not being used, one cannot always tell which is the top. To prevent this, before taking them off draw a slight pencil mark along the top of them. Each section should be scraped, not too hard to cut the wood, and then taking a cloth in your left hand and firmly holding the section, lightly clean it all round with a sponge, and in putting it down take hold of the corners so that no mark be left. Place in boxes these together in three qualities, firsts, seconds, and thirds, place layers of newspaper over each layer to prevent droppings from the different rows running over the others, mark on the outside of the boxes the number of sections inside, and store away in a clean dry place. Biscuit-tins do well to pack them in where room is a consideration, as each tin will hold sixteen sections, and they can be packed away closely. Run honey should also be stored in a dry warm place, to prevent it getting candied.

Notes in Brief.—Keep a close observance on bees robbing, and take care that there are no pieces of comb containing honey left about, or that the honey stored is where the bees can get at it. Mark out the stocks that have done no good. Look to the roofs this wet time, and if need be put on another quilt while bad weather lasts. Destroy all wax-moth and earwigs, and replace the naphthaline evaporated. Close up the entrances a little where the stocks are not very strong.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the **PUBLISHER**.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS for SEPTEMBER.

TUESDAY,	SEPT. 2	Royal Horticultural Society's Committees, and National Dahlia Society's Show at the Drill Hall, Westminster. Scottish Horticultural Association Meeting.
WEDNESDAY,	SEPT. 3	Glasgow and West of Scotland Horticultural Society's Show (2 days). Ancient Society of York Florists, Members' Exhibition. Preston and Fulford Horticultural Society's Show (2 days).
THURSDAY,	SEPT. 4	Paisley Horticultural Society's Show (2 days).
SUNDAY,	SEPT. 7	Chambre Syndicale des Horticulture Belg., Ghent, Meeting.
WEDNESDAY,	SEPT. 10	Royal Caledonian Horticultural Society's Autumn Show at Edinburgh (2 days). Hull and District Horticultural Association's Show (2 days). Derbyshire Agr. and Hort. Soc. Exhibition at Derby (2 days).
TUESDAY,	SEPT. 16	Dahlia Show at Royal Aquarium, Westminster (3 days).
THURSDAY,	SEPT. 18	Fruit Show at the Crystal Palace by the Royal Horticultural Society (3 days).
MONDAY,	SEPT. 22	National Chrysanthemum Society's Floral Committee Meeting at 3 P.M.
TUESDAY,	SEPT. 23	Royal Horticultural Society's Committees Meeting, and National Dahlia Society's Floral Committee Meeting at Drill Hall, Westminster.

SALES FOR THE WEEK.

MONDAY to FRIDAY, SEPTEMBER 1 to 5—
Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 11. Dutch Bulbs, by Pollexten & Co., Pilgrim Street, Ludgate Hill, at 12.30.
WEDNESDAY, SEPTEMBER 3—
Bulbs and Plants, by J. C. Stevens, 38, King Street, Covent Garden, at 12.30.
FRIDAY, SEPTEMBER 5—
Orchids, by Protheroe & Morris, at 12.30. Orchids, by John Cowan, at Trades Hall, Glassford Street, Glasgow, at 12.30.
(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —59·6°.

ACTUAL TEMPERATURES:—
LONDON.—*August* 27 (6 P.M.): Max. 73°; Min. 55°.
August 28.—Dull, foggy, warm.
PROVINCES.—*August* 27 (6 P.M.): Max. 63°, S.W. Ireland; Min. 54°, Orkneys.

The Champion Grapes.

THE interest excited in the Grape classes at Shrewsbury, and especially in the champion class, assures us that the particulars of the manner in which Mr. SHINGLER has achieved his success will be acceptable to our readers, and taken in conjunction with the illustrations, will form an appropriate souvenir of the occasion.

What struck the onlooker was the size of the berries, and their perfect finish—Muscat of Alexandria excepted, for which lack the weather is responsible this year. When readers and visitors realise the large number of bunches the Vines carry annually, they will be still more struck with the result which Mr. SHINGLER has achieved.

Gardeners as a body generally associate exhibition Grapes of a high standard of merit with single rods, and a very limited number of bunches to each. In several instances Mr. SHINGLER allows six dozen bunches to perfect on a Vine. The number of bunches of Grapes per Vine, according to notes taken recently of Mr. SHINGLER'S Grapes, were:—Gros Maroc, sixty-nine; Muscat of Alexandria, forty-four; Black Alicante, sixty-five; Alnwick Seedling, forty-nine; Madresfield Court, seventy-nine; and Gros Colmar, sixty-one.

In the autumn of 1894 four new vineries were erected, each ninety-five feet long and twenty feet wide, span-roofed, standing parallel to each other, and running north and south, so that both sides obtain an equal amount of light and sun. They are so contrived that the gutters between any two of the houses carry the water from off the roofs of both. It will thus be perceived that there are no outside borders, the roots being in every case inside the vineries. In construction, the main object sought for was abundant light.

The height of the vineries admits of fourteen-feet rafters, and thus provides space for a sufficient length of rod to carry a substantial weight of fruit. Instead of planting Vines three or four feet apart, as is the custom, which in this case would have required two hundred and forty Vines—a serious item of expenditure, six were planted in each house for permanent cropping. In the spring of 1895 the Vines were planted, one midway along the side of the vinery, and the remaining four at a few feet from the ends.

The borders were made on the "piecemeal" system. Mr. SHINGLER is not a believer in giving too much rooting space at once to Vines. The borders are 3 feet deep, 6 inches of which is drainage material resting on concrete. Much care was, of course, given in the preparation of the soil. The staple at Melton-Constable is destitute of lime, therefore, in preparing the compost, a quantity of mortar rubble, charred garden refuse, and slaked lime was added, and the turf was obtained from a neighbouring pasture, no manure of any kind being afforded.

The training of the Vines required much skill in laying in the wood, which was to serve as the foundation for Vines to cover so large an amount of roof in a short time. Two, and in some instances three, canes were allowed to extend the first year for providing future rods. Where three were provided, one was trained directly up the roof, and others horizontally along the bottom wire to the right and left of the main stem. From the horizontally-trained rods growths at intervals of three and four feet as they occurred were trained directly up the roof.

Ample foliage is regarded by Mr. SHINGLER as an absolute necessity, but over-crowding is strictly guarded against. One good leaf, thoroughly exposed to light and air is preferable to a dozen flimsy ones with long attenuated foot-stalks. Good culture consists in ensuring bunches for as many years as a person thinks fit, and these should be as large at the base of each rod as at the extremity. This can only be realised by judicious pruning during the first few years of the growth of the leaders. The Vines at Melton-Constable are living examples of this method of pruning.

Now, as to the results attained. The year after planting, 1896—each Vine was allowed to carry from twelve to fourteen bunches; the year following, 1897, twenty-five bunches were taken from each. In 1898, Alnwick Seedling bore forty-three well developed bunches, with full-sized berries, the colour being all that could be desired. Alicante was cropped to the extent of forty bunches, many of which weighed five pounds, and several seven pounds each. Gros Colmar carried, without being distressed thereby, forty bunches, many of which would turn the scale at six pounds, the berries of large size, while colour and finish was all that could be desired. Muscat of Alexandria in the vinery set apart for this variety alone, had sixty bunches, many weighing four pounds each. In 1900, one Vine of Gros Maroc carried seventy-five bunches, each bunch being furnished with large berries, all carrying that colour and bloom so pleasing to a Grape-grower.

In the case of Alnwick Seedling, there were but three bunches that did not weigh over three pounds; the remainder, about four dozen, ranged from four pounds to five pounds each. One Vine of Madresfield Court, had seventy bunches. Gros Colmar was carrying sixty-seven bunches. Alnwick Seedling carried fifty-one clusters, all of superb finish.

When the writer saw the Vines early in September, 1901, they were, in some instances, more remarkable than ever; while, this year, the public at Shrewsbury have had an opportunity of seeing and hearing of what can be done by sound practice and perseverance.

EXHIBITS AT SHREWSBURY SHOW.—The four photographs which we reproduce in the present issue were specially taken at the Shrewsbury Show for publication in this Journal, and will serve to illustrate the full report which we gave last week. The first one (fig. 54) is the champion exhibit of twelve bunches of Grapes, shown by Lord HASTINGS (gr., Mr. W. SHINGLER), but it should be stated that the exhibit was rearranged after the judging had been done, so that the handsome Silver Cup might not hide any of the Grapes. The varieties, reading from left to right, are as follows:—back row: Gros Maroc, Muscat of Alexandria (two bunches, one on either side of the cup), and Gros Maroc (two bunches). Front row, Black Alicante (three bunches), Muscat of Alexandria, and Alnwick Seedling (three bunches). Owing to the courtesy of Mr. SHINGLER, we are able to give the exact weight of the bunches: Gros Maroc, 3½ lb., 4½ lb., and 4 lb.; Black Alicante, 6 lb., 5lb., and 6 lb.; Alnwick Seedling, 6½ lb., 7 lb., and 7½ lb.; and Muscat of Alexandria, 5 lb., 6½ lb., and 4½ lb. The total weight of the twelve bunches was 66 lb., thus giving an average of 6½ lb. for each bunch. In fig. 56 is shown Messrs. BUCHANAN'S exhibit, which was awarded the 2nd prize, gaining 98½ points, against 105½ points. Messrs. BUCHANAN'S varieties were Alnwick Seedling (four bunches), Muscat of Alexandria (four bunches), Black Alicante (three bunches), and Black Hamburgh (one bunch).

The collection of sixteen dishes of fruit illustrated in fig. 57, and shown by T. CORBETT, Esq., Impney Hall, Droitwich (gr., Mr. J. JORDAN), was one of exceedingly high quality. His Grapes included the varieties Madresfield Court, Black Hamburgh, Muscat of Alexandria, and Duke of Buccleuch; Peaches Violette Hâtive, and Stirling Castle; Nectarine Lord Napier, unusually good Apricots, easily recognised at the extreme left side of photograph; Transparent Gage Plums, Brown Turkey Figs,

Group of Miscellaneous Hardy Plants, shown by Messrs. J. Veitch and Sons, Chelsea.

one dish of sweet Cherries, a dish of Oranges standing between two Melons, Hero of Lockinge and Frogmore Selected, and Pear Clapp's Favourite.

In fig. 55 is shown the 1st prize exhibit of a collection of vegetables from R. W. Hudson, Esq., Danesfield, Marlow (gr., Mr. J. Gibson). It was shown in Messrs. J. Carter & Co.'s class, and may be described as being as fine in quality as any that have been exhibited at Shrewsbury. The different vegetables were as nearly perfect as possible, the only sign of any weakness whatever being in the Potatos. It should be remembered that the exhibit was made in August, and the Leeks therefore could not possibly be fully developed. The varieties were Lyon Leek, Autumn Giant Cauliflower, Ivory White Celery, New Red Intermediate Carrot, Windsor Castle Potatos, Gladstone Pea, Perfection Tomato, and Jubilee Runner Bean.

Supplementary Illustration.—The Supplement which we present to our readers this week represents a group of ornamental plants arranged by Messrs. James Veitch & Sons. The variety and beauty of the groups put up by this firm are well known to all visitors to the Temple Show, who can but admire the stately Eremurus, and the mass of colour afforded by the spring-flowering shrubs and other plants. As a general statement, and one not intended to apply to this particular group, we may point out a few lapses into which the framers of these decorative groups fall. Foremost is the employment of too many subjects, resulting in a confused appearance, which destroys the beauty of the group as a whole, and is of course fatal to individual plants; next is the defective colour-sense. No dogmatic teaching can alter this, but only careful observation and experience. Again, there is often a want of originality: because A. B. C. produce a beautiful arrangement, that is no reason why D. E. F. should copy it. Rather should they strive to produce something equally good but different. This again can only be taught by comparison and experience. Lastly, we may remind those who have to judge these groups, that the rarity and even the intrinsic interest of the plants forming these groups, are secondary matters as compared with good taste in arrangement. The commonest materials tastefully grouped, are more satisfactory than a jumble of new and rare plants whose merits are best judged singly.

Royal Horticultural Society. — The Royal Horticultural Society will hold a special exhibition of Dahlias on September 2 and 3, in conjunction with the National Dahlia Society, in the Drill Hall, Buckingham Gate, S.W. At this meeting only Dahlias can be shown, with the exception of flowers, fruits, &c., for Certificate. All Dahlias, including those shown for Certificate, must be left on exhibition until 5 P.M. on the second day, but other plants may be removed as usual. For schedule of prizes see *Royal Horticultural Society's Book of Arrangements for 1902*, pp. 91 to 93; or separate schedules can be obtained on application to either Mr. J. F. Hudson, M.A., Gunnersbury House Gardens, Acton; or to Mr. C. E. Wilkins, 19, Lyndhurst Road, S.E., Joint Secretaries to the National Dahlia Society. A lecture on "Hardy Fruits in Yorkshire" will be delivered by Mr. A. Gault, F.R.H.S., at 3 o'clock.

—— At a general meeting of the Royal Horticultural Society, held on Tuesday, August 19, fifteen new Fellows were elected, amongst them being Lily, Dowager Duchess of Marlborough, and Sir Clinton E. Dawkins, K.C.B., making a total of 885 elected since the beginning of the present year.

—— Intending exhibitors at the Crystal Palace Fruit Show on September 18, 19, and 20, can obtain an official entry form, together with schedule, on application to the Secretary, Royal Horticultural Society, 117, Victoria Street, S.W. (a penny stamp should be enclosed). Entries for this show close on September 11.

The Rainy Summer.—The rainfall records for London, as given by the Meteorological Office, show that the aggregate measurement already this summer is in excess of the average for the past 35 years. In June the measurement was 3·43 inches, which fell on 19 days; in July 1·70 inches on 9 days; and for the first three weeks in August 1·93 inches on 14 days. This gives the total for the summer, as yet, 7·06 inches, which has fallen on 42 days, the average for the three months being 6·50 inches, and the average number of rainy days 41. At Greenwich the average rainfall for the three summer months is 6·66 inches, as shown by the results of the last 60 years. During the present summer July was unusually dry, owing, in a great measure, to the absence of thunderstorms, which, as a rule, contribute greatly to the rainfall at this period of the year. Each of the last seven summers has had less rainfall than the average at Greenwich, and there have only been five summers with an excess of rain in the last 20 years. These are 1888, with an aggregate rainfall of 13·84 inches, an amount nearly double that measured this summer; the summer of 1890, with a rainfall of 9·58 inches; 1891, with 8·40 inches; 1892, with 6·82 inches; and 1894, with 8·34 inches. The smallest summer rainfall in the past 20 years is 2·85 inches in 1899, which is considerably less than one-half of the measurement during the present summer.

Melon.—Dr. Bonavia has kindly forwarded us a specimen of the spotted Melon of Lucknow, alluded to in another column, a small globular fruit, flattened at the poles, with a green rind marbled with white. The flesh is white, somewhat granular or mealy, but of excellent flavour, and edible almost up to the rind, so that there is very little waste—a great advantage in a Melon. The native name is Chitla Kharbooza.

Proliferous Strawberry.—Mr. Grieve, of the Redbraes Nursery, Edinburgh, kindly sends us a Strawberry in which at the base of the so-called fruit (thalamus) is a circlet of little leaf-buds axillary, as we suppose, to the petals, but these latter had fallen. The so-called fruit of the Strawberry is, as all botanists know, merely the swollen end of the axis of the flower, bearing on its surface the true fruits or achenes, each one of which contains a seed, but is not itself the seed. The axis of the flower occasionally produces leaf-buds in place of these achenes, examples of which have been figured from time to time in our columns. However interesting they may be to the student, such deviations do not commend themselves to the ordinary consumer, still less perhaps to the grower. Fortunately, from their point of view, the occurrences are very rare.

Pomological Exhibition and Congress at Pau.—We learn that a pomological exhibition is to be held at Pau from September 27 to October 2 next. Fruit, and cider and perry-making, are among the chief subjects proposed for discussion, though there will also be sections for flowers and vegetables. The Société Pomologique de France will hold its forty-third session at Pau on September 29, in connection with the above-named exhibition. Full particulars, rules, and scales of railway fares are obtainable from the Mayor, President and Commissaire-Général de l'Exposition, M. Faisans: address, Mairie de Pau.

Gloxinias. — Many years ago a race of Gloxinias was produced with a second corolla on the outside of the original one, but with the peculiarity that while the deepest colour is inside the ordinary corolla in the supplementary corolla, the colour is outside. The condition was described and figured in *Masters' Vegetable Teratology*, where references are given to the literature of the subject. This race died out, for though we very often see flowers showing this condition in a partial or imperfect degree, we have not seen it in a perfect state for some years. Lately, however, we have received a photograph from Messrs. Parsons & Co., of Oxford Street, Swansea, of a plant of their "calycanthemous" Gloxinia, which is the result of five years' careful cross-breeding and selection. The term calycanthemous is not applicable here, as the calyx is not affected, and the new corollas are out-growths from the base of the old one.

Homeland Handbook to Evesham. — The twenty-fifth volume of the well-known handbooks issued from the Homeland Association, Ltd. (24, Bride Lane, Fleet Street, E.C.), is devoted to Evesham and the neighbourhood. The district includes the well-known and beautiful village of Broadway, under the Cotswold Hills. The book is written by Mr. William Smith, and illustrated from photographs and from drawings by E. H. New and B. C. Boulter. A map of the neighbourhood is included. The district is well known to gardeners as a centre of market gardening and fruit culture.

Precious Souvenirs from the Martinique Botanic Garden.—In *La Nature* for August 9, M. Y. Dybowski tells a remarkable tale connected with the recent eruption of Mont Pelée. Two days before the St. Pierre Botanic Garden was destroyed by this catastrophe, a case of plants was forwarded thence to the Colonial Garden of the Ecole Supérieure d'Agriculture Coloniale. On opening this case, the plants, which then were all that remained of the ruined garden, were found to be sprinkled with the dust that had already, before their departure, issued from the volcano. Needless to say, the greatest care will be taken of the precious relics, which it is hoped will be propagated and distributed.

International Plant Breeding Conference.—The Committee of Arrangements for the Conference on Plant Breeding, to be held September 30 and October 1 and 2, by the Horticultural Society of New York, announces the following new titles as added to the programme since publication:—

27. *Hybrids and disease*, L. H. Pammel, Botanist, State College, Ames, Iowa.

28. *Wine ferments*, W. B. Alwood, Mycologist, &c., Polytechnic Institute, Blacksburg, Va.

29. *Breeding for intrinsic qualities*, W. M. Hays, Agriculturist, State Experiment Station, St. Anthony Park, Minn.

30. *Practical points from the Breeding of Strawberries and Bush Fruits*, F. W. Card, Horticulturist, State Experiment Station, Kingston, R. I.

31. *Some every day notes on Plant Breeding*, Luther Burbank, Nurseryman, &c., Santa Rosa, Cal.

32. *Advantages of Conjoint Selection and Hybridisation and Limits of Usefulness in*

FIG. 54.—CHAMPION GRAPE CLASS AT SHREWSBURY.
First prize exhibit, shown by Lord Hastings, Melton-Constable, Norfolk, gr., Mr. W. Shingler (see p. 158). (Photographed by W. Thurtle, Shifnal.)

FIG. 55.—FIRST PRIZE COLLECTION OF NINE SORTS OF VEGETABLES.
Shown at Shrewsbury by R. W. Hudson, Esq., Marlow, Bucks, gr., Mr J. Gibson (see p. 159). (Photographed by W. Thurtle, Shifnal.)

FIG. 56.—CHAMPION GRAPE CLASS AT SHREWSBURY.
Second prize exhibit, shown by Messrs. D. & W. Buchanan, Kippen, Stirling, N.B. (see p. 158). (Photographed by W. Thurtle, Shifnal.

FIG. 57.—FIRST PRIZE COLLECTION OF SIXTEEN DISHES OF FRUIT.
Shown at Shrewsbury by T. Corbett, Esq., Impney Hall, Droitwich, gr., Mr. J. Jordan (see p. 158). (Photographed by W. Thurtle, Shifnal.)

Hybridisation among Grapes, T. V. Munson, Nurseryman, Denison, Texas.

33. *Artificial Atavism*, Hugo de Vries, Director, Botanical Gardens, Amsterdam.

34. *Hand Pollination of Orchard Fruits*, H. C. Price, Horticulturist, State College, Ames, Iowa.

35. *Some Conclusions*, Max Leichtlin, Baden-Baden, Austria.

36. *Cross Fertilisation of the Sugar-cane*, D. Morris, Imperial Commissioner of Agriculture for the West Indies, Barbados.

37. *The Improvement of Corn by Breeding*, C. P. Hartley, Plant Breeding Laboratory, U. S. Department of Agriculture.

38. *Improvement of Crops for Arid Regions and Alkali Soils*, Thomas H. Kearney, in charge of Alkali Investigations.

39. *Improvement of Oats by Breeding*, J. B. Norton, Plant Breeding Laboratory, U. S. Department of Agriculture.

40. *On Variation in Plants*, J. P. Norton, Plant Breeding Laboratory, U. S. Department of Agriculture.

41. *On the Breeding of Disease-resistant Varieties*, W. A. Orton, Assistant Pathologist, U. S. Department of Agricuture.

42. *Evolution under Domestication*, O. F. Cook, Botanist in charge of Tropical Agriculture, U. S. Department of Agriculture.

43. *Improvement of Roses by Bud Selection*, Prof. L. C. Corbett, Horticulturist, U. S. Department of Agriculture.

44. *A paper on the Improvement of Cotton by Breeding*, Herbert J. Webber, in charge of Plant Breeding Laboratory, U. S. Department of Agriculture.

45. *Some Laws of Plant Breeding*, Herbert J. Webber, in charge of Plant Breeding Laboratory, U. S. Department of Agriculture.

46. *Suggestions for the classification of hybrids*, R. I. Lynch, Curator, Botanic Garden, Cambridge, England.

Prof. L. H. Bailey supplies as the title for his address, already announced as No. 5, *A Medley of Pumpkins* (illustrated by lantern slides). *Leonard Barron, July* 26, 1902.

THE BRITISH ACADEMY.—A Royal Charter has been granted to this Institution, which is to do for History, Philosophy and Philology, what the Royal Society does for science.

THE NATURAL HISTORY MUSEUM.—It is probable that many of our friends from the country will visit the great Museum in Cromwell Road this autumn. For those who are not merely sight-seers, but who also take an intelligent interest in what they see, a rich treat is provided. We notice some large models, beautifully executed, of the harmless gnat and the noxious mosquito, together with instructive details showing the connection of mosquitos with malarial fevers. In one of the side compartments of the great hall is a collection illustrative of the volcanic eruptions in the West Indies, and their effects.

The object of this exhibition is merely to put the visitor in a position to appreciate the newspaper reports, and to give him some idea of the wider relations of the eruptions. With this view the exhibition is arranged in sections, which the visitor is recommended to study in regular order, as here numbered.

I. The wall-case on the left of the entrance to the bay contains—(*a.*) At its left end, maps and diagrams showing the relations of the Lesser Antilles to other regions of volcanic activity, notably Central America. (*b.*) Passing to the right, special maps of some of the islands, with pictures of their volcanos, of the country generally, and of its aboriginal inhabitants, and views of Mexican volcanos. To this is appended, on a special screen, a series of sketches lent by the Rev. W. C. BOURCHIER, R.N.

II. The case in the centre of the bay illustrates various points in the natural history of the Antilles—(*a.*) The compartment on the right of the entrance illustrates the raising of the Antillean ridge from the depths of the ocean in recent geological times. (*b.*) The next quarter of the case contains lava, dust, &c., ejected by Antillean volcanos in this or previous eruptions. (*c.*) On the other side of the case are specimens of the animals and plants of the Antilles, especially of Martinique and St. Vincent. Those selected for exhibition are of interest, either for their rarity, or for the frequent mention of them in the published accounts of these islands.

III. Returning to the far end of the bay, the visitor will find, placed on a screen, various notes and newspaper articles relating to the eruptions.

IV. The wall case now on the visitor's right contains—(*a.*) In the left compartment a series of views of Vesuvius, arranged so far as possible in order of the date of the eruptions that they illustrate. (*b.*) In the right compartment, views of Etna, of other Mediterranean volcanos, of Krakatoa, Tarawera, and others. (*c.*) In the upper part of the right compartment, some views of extinct volcanos in regions now free from volcanic activity.

V. The upright case, leading to the passage out, contains a series selected to illustrate the products of volcanos. On the left are lavas of various kinds, then come fragmentary materials, and lastly, on the other side of the case, specimens that show the effects of gases. One effect of volcanic dust in the atmosphere is illustrated by pictures of the twilight glows due to the eruption of Krakatoa.

In the zoological gallery is to be seen a stuffed specimen of the new African mammal, the Okapi, with the head like that of a deer, while the haunches and forelegs are striped like those of a zebra. A more rapid, satisfying, and agreeable way of obtaining information cannot be conceived than that which is offered in the museum: Whilst there is every facility for the student of detail, equal attention is paid to the requirements of those who wish to obtain a general knowledge of the questions which occupy the attention of scientific naturalists at the present time.

MR. GEORGE NORMAN.—On the occasion of their "silver wedding" on the 14th inst., Mr. and Mrs. NORMAN were the recipients of various presents and manifestations of regard from their employers, fellow servants, and friends. The Marquis of SALISBURY and Lady GWENDOLEN CECIL presented a silver inkstand with an inscription:—

"PRESENTED BY THE
MARQUIS OF SALISBURY
TO MR. G. NORMAN,
ON HIS SILVER WEDDING,
IN MEMORY OF LONG AND FAITHFUL SERVICE."

A pair of silver candlesticks was presented by Viscount and Viscountess CRANBORNE; and another pair of silver candlesticks came from J. C. MCCOWAN, Esq., and Mrs. MCCOWAN. Mr. NORMAN, fifteen months before he married, entered the Marquis's service. It is pleasing and encouraging to have to record such incidents, which redound to the credit of everyone concerned.

FIRE AT MR. A. WATERER'S NURSERY.—A serious fire, involving the destruction of buildings and extensive damage to valuable machinery, occurred at Homebush, Horsell, the residence of Mr. ANTHONY WATERER, the well-known nurseryman, on Tuesday morning last. The conflagration was confined to a barn, engine and implement houses, and originated in the former building, where it was first discovered shortly after six o'clock. Everything was apparently safe at 5 A.M., but at about 6.30 smoke was observed to be issuing from the barn, and within a short time, twenty minutes to half an hour, the block of buildings, in the main composed of wood, became a prey to the flames. When the fire-brigade arrived from Woking the buildings were well alight, and the roof of the barn, which was only about 30 or 40 feet from Mr. WATERER'S house, had fallen in, and that of the engine and implement house soon followed suit. Powerful jets were soon playing on the flames. The brigade soon got the fire in check, and by ten o'clock everything was practically safe. Capt. SHERLOCK and his men left, leaving the employees at Homebush to deal with the smouldering embers and straw. Mr. WATERER'S house itself was never in danger, the wind blowing in a favourable direction; but a flourishing hedge of shrubs and trees which screened the house from the barn and lawn was badly scorched. The total damage will doubtless be somewhere about £600. Mr. WATERER is insured in the Royal Exchange and other offices.

REUNION AT PARK PLACE, HENLEY.—The annual meeting of past and present members of the garden staff at this place was fixed for August 21, when in response to Mrs. NOBLE'S kind invitation, a large number assembled to renew old associations. A cricket match was played, resulting in a victory for the past members, and at 1.30 P.M. all sat down to an excellent luncheon served in a tent; about eighty sat down to the luncheon, and 120 to the tea. After a stroll round the gardens, the day was brought to a close by a smoking concert, held in the garden reading-room, erected by Mrs. NOBLE as a token of her gratitude for her son's safe return from the war. To those who have been absent some time, it was a great pleasure to find Mrs. NOBLE and her worthy gardener, Mr. STANTON, looking so well; and when they took their places to be photographed in the centre of about 100 of their "boys," one could not but wish that other employers and gardeners would copy the example of Park Place, and so help to promote that kindly feeling between employers and *employés*, which does so much to make the wheels of life run smoothly.

FORKING IN THE SUGAR CANE.—In the West Indian *Agricultural News* we find an illustration of a rare occurrence, viz., the bifurcation of the stem of a Sugar Cane.

SYSTEMATIC BOTANY.—The President of the Pharmaceutical Conference at Dundee, Mr. G. CLARIDGE DRUCE, in his address, remarked that "We may regret that systematic botany, which at the date of the last meeting was taught by nearly every occupant of the professorial chairs of botany in the United Kingdom, is now almost without an expounder, with the result, as I said last year at Dublin, that Great Britain is falling behind her continental and Transatlantic rivals — a fact especially to be regretted when we remember the vast extent of the area which Greater Britain occupies, and the immense share in the vegetable products of the globe which we possess. Even in such a limited branch as that of works treating of the botany of the British Isles, the output during the last twenty years does not compare favourably with that of France, Germany, Scandinavia, or the United States." Gardeners need some acquaintance with the physiological and the systematic side of botany, but the minute histological research which is of such great importance in itself, is not yet of practical importance to the cultivator, to whom a general knowledge of common plants and of the natural orders, and of the rudiments of physiology, are of more immediate importance.

MR. O. T. HEMSLEY.—The Lahore paper states that the Director, Botanical Survey of India, has nominated Mr. O. T. HEMSLEY, the son of the Curator of the Herbarium at Kew, and attached to the Government Cinchona plantation, Bengal, for the appointment of assistant, and eventual successor, to Mr. HEIN, for the charge of the Government Agri-Horticultural Gardens, Lahore, and the Lieu-

tenant-Governor of the Punjab has accepted the nomination. Mr. Hemsley is to join his appointment on October 1 next, and on Mr. Hein retiring, about six months later, will become Superintendent. *Indian Gardening.*

Mr. H. J. Ross.—We are concerned to learn from the *Revue Horticole*, of the death of this gentleman at Poggio Gherardo near Florence. The deceased gentleman was a great Orchid grower, and a frequent correspondent of the *Gardeners' Chronicle*.

Variegation.—This condition is generally due to the deficiency or absence of the chlorophyll grains in the leaves. This absence (according to Professor Woods as cited in a note in *American Gardening*) is due to the action of an "enzyme" or ferment, which interferes with the processes of life, and hinders the transfer and solution of starch. Professor Woods has produced the disease artificially by removing the top of a rapidly growing shoot at any stage of growth. But surely this is often done without any variegation appearing in consequence. Whatever causes the diminution of the reserve stores of food, especially of soluble nitrogenous food, below the requirements of the growing tissues, may cause this disease. It is helpful to get a suggestion of this kind, even if it prove to be inadequate to explain the phenomena adequately.

Populus charkowiensis×.—In Möller's *Deutsche Gärtner Zeitung* for August 16 we find an illustration and a description of a new Poplar, asserted to be the result of a cross between Populus pyramidalis and P. nigra. The hybrid is stated to be hardy in the north of Russia where the pyramidal Poplar is killed by frost, but P. nigra never. We are not told how and where the new variety originated, and as the pyramidal is supposed to be a form of the black Poplar, we await fuller information concerning the alleged cross.

"Florilegium Haarlemense."—The 20th part of this useful publication, dated October, 1901, but only received recently, completes the volume. It is devoted to the illustration and description of the leading bulbous plants selected by the Council of the General Society of Bulb Culture as typical or as the best of their kind in general cultivation. It is published at Haarlem by De Erven Loosjes, and forms a valuable historical document. As times change, and fashion with it, it is to be hoped that this publication will be renewed every five or ten years, so as to enable the student to compare the present with the past, and see in what directions evolution has proceeded, and how tastes have changed. In the present part we have illustrations of:—

Hyacinth Charles Dickens.—A single red "sport" from the well-known blue form. The sport is further remarkable as having appeared in different plants in various gardens at the same time, as often happens in the case of sports.

Tulip, Maiden's Blush, a late "Picotee" variety, with whitish coloured flowers margined with pink. It is also known under the name of La Vierge.

Tulip, Bouton d'Or.—Also known as Ida, lutea, and Golden Beauty. It has flowers of a rich golden yellow, with black stamens.

Ranunculus.—The varieties figured are: 1, Hercules, double white; 2, Romano, double red, known to Clusius in the middle of the 16th century; and 3, Seraphique d'Alger, double yellow. These are all forms of Ranunculus africanus, and are not infrequently subject to median prolification. These are all turban Ranunculuses, and differ from the Persian, Scotch and French Ranunculuses in flowering earlier.

Furnishing Bulbs for the Royal Parks and Gardens.—The First Commissioner of His Majesty's Works has accepted the tender of Messrs. W. Cutbush & Son, Highgate, N., for the supply of bulbs for bedding purposes in the coming season to the Royal parks and gardens in the charge of this department.

BOOK NOTICE.

Roses for English Gardens.*

"Surely, there can be no room for another book about Roses," will be the exclamation of many before they turn over the pages of this dainty volume. Having done so, they will find how futile is their question; change and progress are as marked in the case of Roses as in any other class of garden plants, to say nothing of the mutations induced by fashion and caprice. We have but to look back for a few years to see how the favourites of those days have been dethroned, and how, more or less satiated with the faultless symmetry of the exhibition Roses, some yearn for the abolition of the hideous boxes in which it is still considered necessary to show them, and plead for some freer, less formal mode of exhibiting the universally beloved flower, and especially for the introduction into our gardens of some less trammelled method of cultivating them. Of course, the thorough rosarian will never admit that the objects of his solicitude are but maimed cripples, and that the pinching and pruning to which he subjects them, and the suppression of all but one or a few buds, are really barbarous processes, inducing a state of things comparable to those practised in the fattening of a Strasburg goose. It would be deemed very heretical, no doubt, to hold such tenets. We should repudiate them as exaggerated statements; but at the same time we have great sympathy with those who, like one of the authors of this book, look on Roses as decorative objects, and who like to see them growing as Nature intended them to grow. The increasing favour bestowed on "garden Roses," so called, is clear evidence that the narrow limitations of the florist run counter to the taste or to the fancy of a large section of plant-lovers. Garden-Roses are to other Roses what "furniture pictures" are to gallery canvases. One admires and pays homage to the marvels of genius and the skill of the manipulator, but one prefers for one's own apartments something equally beautiful, but more in consonance with our usual surroundings and requirements. The wonderful popularity of Crimson Rambler has no doubt had much to do with the increased demand for what we may call furniture Roses.

Incidentally we note that in the present work, some objection is made, as it is in the case of some Cattleyas, to the rather crude inharmonious colouring of this Rose, but the newer introductions of the Polyantha section show that this defect is on the high road to amelioration. At the same time there are situations where the Rambler forms beautiful colour schemes. In a garden known to us this Rose is in close proximity to the Silver Spruce (Picea pungens argentea) and to the delicious soft yellow of the Evening Primrose. One would not have thought of such a combination, and might even have denounced it as inharmonious; it was purely accidental, but the effect is beautiful.

Rosa Brunonis is a delightful Rose of this character, whilst among the shrubby kinds R. rugosa and the numerous derivatives from it are delightful acquisitions. These, the Penzance Briars, and many more are alluded to in the pages of the volume before us, with indications of the situations and circumstances under which they do best. The remarks on Roses on their own roots will meet with general approval by amateurs, but we are not sure that they will be so acceptable to commercial horticulturists. The multitudinous uses to which Roses may be put are well illustrated in this volume, which is full of valuable suggestions, the outcome of knowledge, experience, and pure taste. The same remarks may be made in reference to planting and pruning.

The latter pages of the volume, the work of Mr. Mawley, are chiefly devoted to exhibition Roses and their treatment, and to the culture of Roses under glass. On all these points comment might be made, but it is better that the reader should study the book for himself, and make his own comments. Very numerous process illustrations are given; some of these are beautiful, and really illustrative, but others are of little value, either as representations or as pictures. Process blocks are rarely successful in reproducing dense masses of foliage or of bloom. Copious lists of desirable varieties are given, whilst the convenience of the reader is considered in the table of contents and in the index.

A more happy conjunction of effort in authorship can hardly be imagined than that to which we owe the suggestive and attractive volume before us.

* By Gertrude Jekyll and Edward Mawley, *Country Life* Office, Tavistock Street, Covent Garden. 8vo, pp. 165, with numerous Illustrations.

HOME CORRESPONDENCE.

Montbretia rosea, etc.—This fine Montbretia has apparently disappeared from most catalogues. Here at Shipley, we find it one of the best, and its clear rose coloured flowers, with a white stripe running up them, are reminiscences of Gladiolus Colvillei, and a welcome change from the orange and yellow coloured flowers, so prevalent in the autumn. M. rosea is very distinct in habit, a tall grower, with dark green narrow and spear-like leaves, and tall very branching flower-spikes. It is even taller and finer in growth, than M. crocosmiæflora. M. Golden Sheaf, promises to be good and exceedingly floriferous, but it is too dwarf in habit to make it very useful for decoration, except perhaps, as a groundwork plant. Montbretias are such elegant flowers, that one would expect them to be much more commonly grown than they are for cutting, but it is easy to make a common mistake in their culture by leaving them undisturbed year after year. They should be lifted annually, and only the best bulbs replanted. *J. C. Tallack, Shipley Hall Gardens.*

Barren strawberries.—In the *Gardeners' Chronicle*, July 5, at p. 8, allusion is being made by Mr. Clayton to some plants of Leader Strawberry becoming barren, and also to an amateur neighbour having similar experience wfth plants of Monarch. Anent this, I may perhaps be allowed to state that in about 1885 I had precisely similar experience, but on a far more extensive scale, inasmuch as the plants on a whole quarter on which we were depending for that year's use became completely barren. Needless to say, I was much put about, as my younger successions were not in fruit sufficiently to make up the deficiency. I got over my trouble through an unforeseen circumstance, namely, that the family to whom the place was then let took themselves

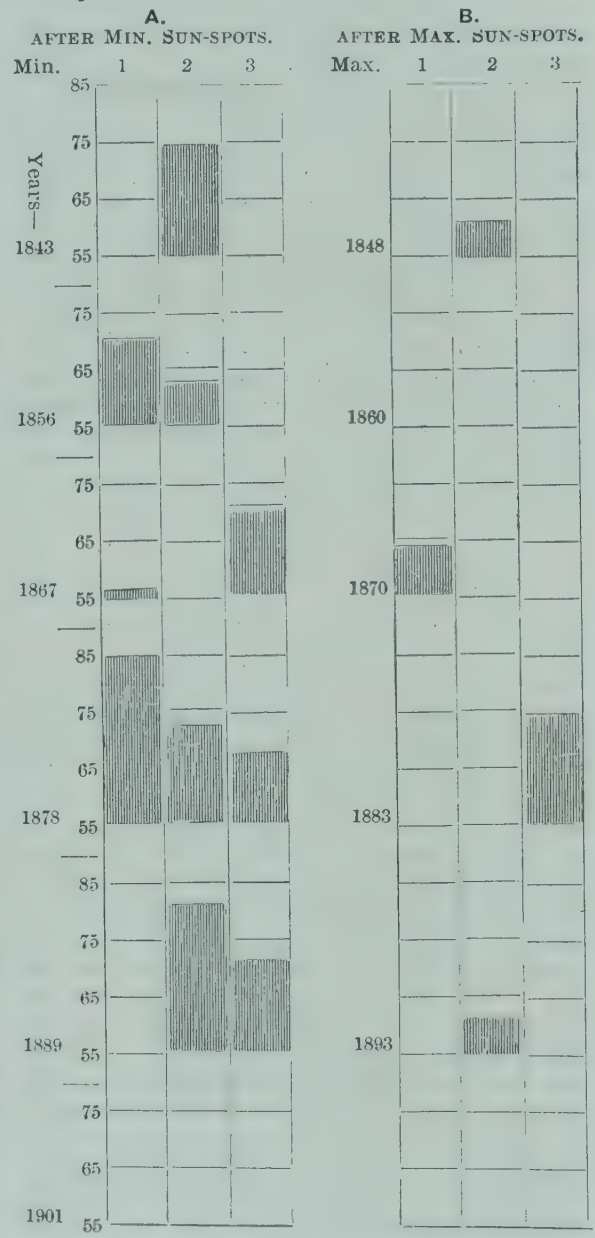
suddenly away, bag and baggage, on account of the insanitary condition of the house, never again to return; so that I was spared, no doubt, much grumbling over a matter that I could neither help nor foresee. The previous year, the plants being young, bore very well, and the year of failure was the one in which the plants were expected to be at their best. A local Strawberry philosopher gave it as his opinion that the plants were all males, and could not possibly fruit; but I could not reconcile myself to believe that so sweeping an evolution of sex should be brought about in the same plants, and all within one year. Well, I was loth to dig up so healthy a quarter of plants, and resolved to let them remain, and see whether the so-called male plants would again revert to their fruiting condition the year following. And this they did, though what physiological process they made use of to effect this end I cannot pretend to either say or even surmise, but the crop of Strawberries they gave was enormous. All we did to the plants was to clear them of all runners, and rather freely thin out the crowns; but I do not remember whether the variety was Vicomtesse Héricart de Thury or Sir Joseph Paxton. Never since have I had any such experience. *W. Miller, Berkswell.*

A GOOD LATE STRAWBERRY.—At this season of the year, when so many fresh Strawberry-beds are being made and planted, I would draw attention to what has proved to be with us a good late Strawberry, viz., Laxton's Latest-of-All. Planted here on a north border, we have been picking fine fruits from it up to the present date (August 18), while even now there are a few fruits ripening. We commenced our Strawberry season here by picking John Ruskin from a south border on June 26, since when we have maintained a succession down to the present date. Our soil is a heavy one, well suited to Strawberries. *W. H. Y., Rotherfield Park Gardens, Alton, Hants.*

THE ARAUCARIA AT DROPMORE.—Having read several articles in the *Gardeners' Chronicle* in reference to the death of this noble tree, I am pleased to inform Mr. Herrin of the treatment it received during the spring and summer of 1900. After I had been in charge of the gardens six weeks, the second week in February I noticed it was failing. On the east side the branches at the points had turned yellow; on examining the surface round I found it had a heavy coating of manure banked up round the trunk, which had been placed there previous to my appointment. I eventually caused it to be carefully removed, being of the same opinion as "A. D.," that it was impossible for Conifers to exist under such treatment. After which it was again top-dressed with loam and leaf-mould, and spread a good distance from the trunk, so as to encourage the young roots; later, during the hot dry weather, the surface was covered with a thin layer of bracken and well watered. In March of the same year a gentleman from the United States of America, one who makes a study of Conifers, visited the grounds, and on inspecting the tree remarked that it was declining. The death of this specimen is a great loss to Dropmore, it having been an attraction to the gardening community and other visitors. *A. R.* [It must be remembered that everything points to the fact that the Araucaria is not a long-lived tree in this country. ED.]

LATE MELONS.—Of the different varieties I have grown this season I have had none that is the equal of Sutton's A1, a variety that I have grown for some years, and always been enabled to grow successfully, and the flavour is good. I grow each year a few new varieties, and Sutton's Scarlet has also proved itself a very good variety. Neither of these Melons ripen so early as most white-fleshed varieties; the red flesh of A1 is thick and solid, and keeps good and retains its high flavour for several days after being cut when kept in a moderately warm place. It is a strong-growing plant, not liable to be attacked by red-spider, and the flowers, which are freely produced, set readily. *H. Markham, gr., Wrotham Park, Barnet.*

HOW WE STAND AS TO WINTER.—The severity or mildness of winter is a matter of anxious consideration to multitudes. Shall we ever attain to sound definite anticipations as to this? I think sunspot influence is here at work; and as, e.g., during the last sixty years, the three winters after each sunspot-minimum have always had, as a group, a good deal more cold than the three after the following maximum, we might, perhaps, go upon this as a working hypothesis till at least it fails us; and 1901 being, it would seem, a year of sunspot-minimum, usefully consider the character of the three winters, 1902, 1903, and 1904; one past, two to come. (For brevity, I designate winters by the years in which they *end*). The diagram herewith sets forth our experience (at Greenwich) of severe winters in those groups; each winter of the kind being indicated by a shaded space denoting the excess of total frost days (September to May) over the average, which is fifty-five.



(The shaded portions indicate severe winters.)

It will be seen at a glance that the first table (A) is much more largely shaded than the second (B), that in A two out of the three winters have usually been severe (and in one case all three); in B never; and that while the first group in A and B had each only one severe winter, that in A was considerably the more severe. We might have taken mild winters also into account, showing that in each three winters of A the total of frost days is greater than in the corresponding group of B. The A groups are also over the average of three winters (except in one case, 1843), and the B groups always under the average. Now last winter had fifty-three frost days, being thus slightly under average. In accordance with the above facts (if directive) we should expect at least one of the next two winters to be severe, and very likely both. In our present state of knowledge it would, of course, be foolish to speak confidently. But your readers may perhaps find these ideas worthy of consideration. *Alex. B. MacDowall, F.R.Met.S.*

ASTERS AT SHREWSBURY.—In the competition for twelve cut Comet Asters, Class 62, the 2nd prize was awarded to twelve Quilled Asters. Why such a mistake should have been made at Shrewsbury it is difficult to understand. Comet Asters are flat-petalled Asters, and are never confused with Quilled Asters, even by amateurs at small country shows. Such a judgment must be very misleading to competitors. *G. W. K.*

PINEAPPLE AS AN AID TO DIGESTION.—Under this head the *Agricultural News*, which is "A Fortnightly Review of the Imperial Department of Agriculture for the West Indies," has a note which has an important bearing on the trade in tinned Pineapples. The flavour of these fruits and their price, as compared with that of the fresh grown fruit have gained for them a very wide reputation, and tinned Pineapples are not despised even on the tables of the upper classes, so that Pineapples in this form have become a very large article of import, both from the West Indies and from the Straits Settlements. The fact of their containing a digestive ferment, to which the *Agricultural News* draws attention, is another and a strong recommendation to their use as a dessert fruit. For a long time the Papaw (Carica papaya) has been known to contain a valuable ferment known as papain, used as an aid to digestion, and the *Agricultural News* now refers to the fact that bromelin, the ferment of the Pineapple, is almost identical in its action with papain. Quoting from the *Lancet*, it is stated that "the partaking of a slice of Pineapple after a meal is quite in accordance with physiological indications." Bromelin exerts a powerful action on proteids, digesting 1,000 times its own weight within a few hours. Fibrin disappears entirely, the white of eggs is digested slowly, whilst albumen of meat is transformed first to a pulpy gelatinous mass, to be completely dissolved later. Cooking destroys the activity of the ferment, but the *Lancet* is of opinion that unless the Pineapple is preserved by heat, there is no reason why the tinned fruit should not retain its digestive power. On this the *Agricultural News* says:—"Unfortunately for this hope, Pineapples are sterilized by steam-heat during the process of canning, the ferment being almost certainly destroyed. Unlike pepsin, the digestive principle of the Pineapple will operate in all acid, neutral, or even alkaloid medium, according to the kind of proteid to which it is presented. It may therefore be assumed that the Pineapple enzyme would not only aid the work of digestion in the stomach but would continue that action in the intestinal tract. Pineapple, it may be added, contains much indigestible matter of the nature of woody fibre, but it is quite possible that the decidedly digestive properties of the juice compensates for this fact." With such important properties in the fresh fruit, it seems that there is an opening for some one to try his hand in preparing Pineapples for exportation without the aid of heat. *John R. Jackson, Claremont, Lympstone, Devon.*

PAVIA MACROSTACHYA.—I am sending a spray of Pavia macrostachya which is flowering very freely here, but it is quite three weeks later than usual. There are three very fair specimens at this place which are now in full beauty. It should become a general favourite. *L. E. Walker, gr., Barton Hall, Bury St. Edmunds.* [This species of Pavia makes an excellent solitary specimen on a lawn. The flowers, which are pleasantly fragrant, endure for a considerable length of time. If planted in shady situations, the wood does not mature, and flowering is unsatisfactory. ED.]

A SLUG WHICH SUSPENDS ITSELF BY A LINE.—Herewith a small slug, which I discovered to-day under, to me, strange conditions. As I entered the vinery where the Grapes are just colouring, it was suspended head downwards half way between a bunch of Grapes and a plant standing on the floor. The distance from the top of the plant to the tip of the bunch was about 4 feet. A close examination showed that it was lowering itself by means of a web or string of its own making; it lowered itself very steadily, turning round and moving its feelers the meantime until it reached the plant, to a leaf of which it attached itself by the head first, and as soon as its whole body had reached the surface of the leaf the suspended line was snapped, and it began to crawl down the edge. During my life of over fifty years spent in the country, I have never seen a slug spin a web. Is this circumstance singular? or have I gone about all these years without seeing things which occur under my very nose? I hope the thing will reach you alive, and that you will be able to lighten my darkness. *H. E., Hurstpierpoint.*

GERBERA JAMESONI. — Several references have been made in the *Gardeners' Chronicle* lately to this showy plant, though strangely enough, all, or nearly all have been directed to its value as a greenhouse plant; but it is a fine plant anywhere when in flower, yet I doubt if a full measure of success, or an idea of its showy character can be obtained anywhere, save in the open air and when the sun shines brilliantly. A few days ago in that treasury of rare and good plants that the late Rev. H. Ewbank got together at Ryde, I measured a blossom of this plant which was fully 5½ inches in diameter. The plant was not at that time at its best, but I counted about a score of flower heads, and of these, those that were fully expanded were about 2 feet high. The plant as it approaches the flowering stage shows a curious combination of characters, something akin to a species of Sonchus, with the drooping buds of the Oriental Poppy; yet, what a dis-illusionment when the florets expand and reveal the brilliant colouring. At Ryde, the finest example is in the open bed, where save for a light covering of coal-ashes in the winter, no protection is applied. But the advantages of a garden at Ryde are great; at the same time the remembrance of Mr. Lynch's success with this plant at Cambridge, in the open with winter protection, it should encourage many to make the attempt to grow the Gerbera out-of-doors. Its requirements are a good depth of porous soil, perfect drainage, and exposure to the sun. These conditions might be obtained against a wall with a S.W. aspect; then by covering the crown several inches deep with soil, and affording protection in the winter, it would be quite safe. The chief danger exists in the winter, for the plant starts too late in the spring into growth to be affected by late spring frosts. A second example at Ryde, where the conservatory wall and the adjoining historic Poinciana Gilliesii gives some shade thereto, is smaller and weaker, and it was later in starting into growth this year, evidently showing in some degree that even here the plant appreciates abundance of sunshine. And now that seed is forthcoming in reasonable amount, it is to be hoped that gardeners and amateurs will experimentalise with this plant in the open garden. It is now too late to plant it, and anyone disposed to make the attempt should choose the first half of June for doing so; and then with plants well established in pots, the roots may get a good hold of the soil before the cold weather comes, when a handlight and some coal-ashes put over the crown would enable it to pass through the winter safely. *E. Jenkins, Hampton Hill.*

PLANT PORTRAITS.

Erigeron philadelphicus. *Meehans' Monthly*, July.
Rose Venus, H.P., crimson. *Le Moniteur d'Horticulture*, August 10.
Rose Polyantha Catherine Zeimet, double white. *Moniteur d'Horticulture*, August 10.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

August 19.—*Present:* Dr. M. T. Masters, F.R.S. (in the Chair), Messrs. Gordon, Odell, Druery, Hooper, Saunders, Bowles, Worsley, Dr. M. C. Cooke, Revs. W. Wilks and G. Henslow (Hon. Sec.).

Lavender, improved.—Mr. Wilks showed a spray of a new selected Lavender, having dark purple corollas and calyx. The scent was also stronger than that of the old form. He observed that the white Lavender was devoid of scent.

Mr. Bowles observed that this new kind was somewhat like the dwarf form of Lavender cultivated in some gardens.

Galls.—Mr. Odell showed specimens of various galls on the following plants: Poterium sanguisorba, galled by Eriophyes sanguisorbæ; Polygonum amphibium, galled by Cecidomyia persicariæ; Oak, Q. sessiliflora and Q. pedunculata, galled by gallwasp, Aphilothrix gemmæ; Salix fragilis, galled by Nematus gallicola; bud galls on Campanula glomerata.

Abelia rupestris phyllotaxis.—He also showed three stems of this plant having opposite leaves, whorls of threes and whorls of fours on separate shoots.

Pyrethrum aureum var. "Staghorn." — Mr. Druery exhibited a plant of this variety raised by Messrs. Storrie, Dundee. It is characterised by a distinct tasselling or cresting of the main and lateral apices, precisely as obtained so frequently in Ferns. This form of variation is extremely rare in phanerogams; the only instance known to the exhibitor being the crested form of Asparagus plumosus, in which case it is correlated with extremely Fern-like foliage. In the Pyrethrum shown the leaves are distinctly pinnate, with stipitate pinnæ precisely on Fern-lines, as are the terminal. It is stated to be so far fixed that 80 per cent. of the seedlings are true after five years' cultivation.

Malformations. — Mr. Corderoy sent examples of Wheat-ear Antirrhinum, in which no flowers were present, but short branches covered with minute green bracts occupied their position. A Briar which bore a yellow variegated stem, but the leaves upon it were entirely green, an unusual combination for which no reason could be assigned. Lathyrus latifolius with green flowers. These apparently had received some check, so that although nearly fully formed, the flowers dropped. The stamens had full-sized anthers, which did not dehisce, the styles were arrested much below the anthers, and the stigmas were immature. As the flowers of Honeysuckle sometimes exhibit a similar appearance late in the season, it may be attributable to the late cold month of July.

Silver-leaf Disease. — Mr. Worsley exhibited the grafted portion of the stem of a Peach or Plum showing the decayed condition of the centre. He observed that below the graft the dead part decreased by degrees downwards, till in the roots there was none. His impression was that the disease (caused by the fungus stereum, according to Prof. Percival) proceeds upwards and downwards. The specimen was sent to Prof. Percival for further examination.

Onions and Caterpillars.—Mr. J. Walker, Thame, sent some foliage, upon which Mr. McLachlan reports as follows:—"The larva is that of some Noctuid moth, and probably of Mamestra Brassicæ, which will feed on nearly everything, from Oak to grass. At the present time hand-picking, where the plants are attacked, would perhaps be best, or a good spraying with some of the paraffin preparations. Earlier in the year—say two months earlier—repeated spraying with arsenical or paraffin preparations might save the young plants. At this season the attacks will probably not do very much harm, as the Onions will be well on towards maturity. One can hardly prevent the depositing of eggs, because the moths fly from a distance; the thing to do is to preserve the young plants by rendering the foliage distasteful by means of spraying as before mentioned. Even this is uncertain, because the larvæ may move on to the Onions from some other contiguous crop that may have been gathered, such as Cabbage, &c." Some doubts were expressed as to the desirability of using arsenical preparations, in case it might be absorbed by the Onions, when eaten in the early stage.

Physianthus and moths. — Mr. Henslow exhibited flowering sprays of this plant from Cape Town, in which nearly every flower had retained a grey moth, by the proboscis having caught between the anthers, which are fixed to the stigmatic head in Asclepiads. They either died from starvation, or were picked off by bats, which are aware of their constant presence in these flowers.

Pelargoniums with secondary tubers.—In allusion to the illustration lately received of Leucoium, with secondary tubers below the first, Mr. Henslow showed specimens of small tuberous-rooted species from barren slopes of Table Mountain, in which similar secondary tubers were found below those from which the foliage and flowers proceeded. He suggested that they might be water-reservoirs in this particular case, as the plants were in full flower in the dry season. Such tubers occur in plants (as species of Erodium) in the South African deserts.

Phototropism.—Mr. Henslow described an experiment to illustrate the effect of light in connection with gravity, &c. Mustard-seed was grown on a thin layer of cotton-wool, kept moist on a perforated tea-tray, suspended under an inverted flower-pot, raised upon a support so that the Mustard was illuminated only from below by means of a sheet of white paper. Gravity (the attractive force of the earth) had no effect upon the germinating radicles. If any protruded through the holes, they at once turned back, and with all the rest were entwined in the wet wool. Hydrotropism thus entirely superseded gravity. When the tin was suspended horizontally, the hypocotyls, or caulicles, with the green cotyledons, curved downwards, those on the circumference, being more strongly illuminated, curving more rapidly than the cluster in the middle. When the tin was suspended vertically, after two or three days, all the seedlings curved downwards in the direction of both light and gravity, phototropism overcoming negative geotropism, or apogeotropism. These terms, of course, only describe the movements of the hypocotyls as "towards the light," or in "opposition to gravity," or "away from the earth." They are not "forces." The experiment suggested the possibility of different degrees of illumination being the primary influences in causing the upward growth of the stem and the downward growth of the root. It may be remembered that aërial roots of Ivy protrude on the less illuminated side, irrespective of gravity. So, too, the radicle of Misleto grows towards the bough on which the seed is fixed; so that as the direct light from the sky is greater than the reflected light from the soil, the shoot-end of a plant grows upwards and the root-end downwards. Gravity, however, is believed to act upon the root-tip, as Charles Darwin and his son, Dr. Francis Darwin explain, unless it be overcome by the presence of water, manure, &c. The stem, by growing upwards in opposition to gravity, puts out mechanical tissues to support itself under the influence of gravity, which always tends to pull it down, and has acquired a permanent tendency to rise, as shoots laid horizontally will rear their tips perpendicularly if kept in total darkness. Similarly, it is presumably possible that the root-tip has become sensitive to gravity as a secondary effect. As far as the germination of spores can throw light upon primitive conditions, it has been found that the first cell-plate laid down in the unicellular spore of Ferns and Equisetum is approximately in a plane at right angles to incident light, and that the most illumined half lays the foundation of the stem. Again, the "dorsiventrality" of the prothallium of a Fern, and the development of the rhizoids upon the under side, are determined by different degrees of illumination, and not by gravity.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

August 14.—There was only a small display of plants at the meeting held upon the above date.

S. Gratrix, Esq., Whalley Range (gr., Mr. Cypher), exhibited Cattleya × Atalanta var. superba, a fine hybrid between C. Leopoldi × C. gigas, the sepals and petals are richly coloured with bronzy purple, and the lip is very dark (First-class Certificate).

R. Ashworth, Esq., Newchurch (gr., Mr. Pidsley), staged a group of plants for which a Bronze Medal was awarded, there being of noticeable plants several Cattleya Gaskelliana var. alba, and a fine hybrid Cypripedium called C. × Excelsior, which was awarded a Cultural Certificate.

R. Tunstill, Esq., Burnley (gr., Mr. Balmforth), exhibited a natural hybrid Cattleya, which years ago was known as C. × Claesiana, the character of the flower is almost that of C. Loddigesii, but it is of greater substance.

Messrs. Cowan & Co., Gateacre, received a First-class Certificate for C. × tixallense var. superbum.

E. Rogerson, Esq., Didsbury (gr., Mr. Jones), received an Award of Merit, for Cypripedium × Mrs.

Preston, of which the parentage was not given. Messrs. CHARLESWORTH & Co., Bradford, had a most interesting group of plants, including several good hybrids, Cattleya × Germania, a fine cross between C. Schofieldiana × C. × Hardyana, being specially worthy of merit, a First-class Certificate was unanimously awarded to it; Angræcum distichum, a small quaint West African plant, was also shown. It had erect growths about 6 inches in length, and about twenty pairs of leaves on each stem, the minute white flowers, being freely produced from the axils of the leaves (Botanical Certificate, and a Bronze Medal for group). *P. W.*

A FLOWER SHOW at the CRYSTAL PALACE.

THE National Co-operative Festival was held at the Crystal Palace, Sydenham, during the past week, and was attended by a large number of persons from all parts of the country who are interested in the movement. As the Agricultural and Horticultural Association were not prepared to carry out a flower show on the scale of previous years, and as the display of garden produce had always been a great source of attraction, it was decided at the last moment by the Executive of the Festival to have an exhibition, though on a small scale, and it took place in the basement of the building on the 23rd inst., the nave being fully occupied from beginning to end. A somewhat large space was filled with garden produce, ranging from elaborate table decorations to vegetables from cottage gardens, and though only two somewhat general classes were instituted, a considerable number of exhibits was staged. The task set the judges was a somewhat difficult one, and it necessitated going through the details of each exhibit, and estimating each part according to a schedule of points. Several money prizes and certificates were awarded tables of plants only, some with the addition of flowers; others comprised fruit and vegetables, while others were composed wholly of floral decorations, made up an attractive show, and the co-operators crowded about the tables so soon as the show was opened to the public. There is no doubt but that in the future a flower show will again form a part of the Annual Co-operative Festival, as it has in the past.

BRIGHTON AND SUSSEX HORTICULTURAL.

AUGUST 19, 20.—Fine weather attended the exhibition of this society, which was held a week earlier than usual, and it had the effect of reducing the quantity of Dahlias exhibited, especially those of the show type, cut flowers always being a leading feature of this exhibition. As is usual, the Corn Exchange was filled, and also the available spaces under the huge dome; and in addition a large tent set up in the grounds was required for the groups and specimen plants. The show was well attended, though the Mayor of Hove, who is the President of the society for the year, made complaint at the luncheon to the judges that the townspeople did not give that measure of support to the society which he thought they might do.

Groups of flowering foliage plants were as usual a leading feature, the 1st prize going to Messrs. GEO. MILES & SON, nurserymen, Hove, for an effective arrangement of foliaged and flowering subjects; Mr. Geo. Sims, gr. to E. A. WALLER, Esq., Brighton, was 2nd, also with a very pleasing arrangement.

With a group of Ferns, Messrs. GEO. MILES & Co. were again 1st, and it afforded an excellent object-lesson as to how Ferns can be made to look effective when arranged with judgment. Messrs. W. MILES & Co., Hove, were a good 2nd.

Tables of Flowering Plants.—The best-arranged table was set up by Mr. J. HARPER, Preston Park; there were several others, and they made a good effect dotted about the space under the dome.

Begonias in twelves were well grown and flowered, but small; there were small but very bright Crotons shown in sixes; there were also well-coloured Dracænas in sixes; also Palms in pairs, medium-sized Kentias being staged.

Ferns in pots not exceeding 12 inches were good, Adiantums preponderating; there were nice bushes of Fuchsias, well grown and bloomed; Coleus were in the form of handsome pyramids; fair-sized Caladiums were shown in sixes. There were small but well-flowered specimens of Lilium speciosum; and tables of Orchids arranged with Ferns constituted a pleasing feature also.

There were also classes for plants shown by gentlemen's gardeners and amateurs, such as groups arranged for effect, tables of plants, table plants, &c., in all of which there was a brisk competition, and generally well-grown subjects staged. We are unable to give the names of the leading exhibitors, as only a few minutes being at disposal, it was hoped this information would have been obtained in the Secretary's office; but by 3 P.M. no such list had been prepared.

Cut flowers.—Roses were shown in classes for twelve blooms, and also for the same number of Teas, and neat blooms for the season were staged. Fairly good spikes of Gladioli were shown in stands of twelve spikes. Show Dahlias were somewhat indifferent, and no single varieties were forthcoming; nor was there a single exhibitor of twelve bunches of Pompons, which was all the more surprising because Cactus varieties which are regarded as later in flowering, were in good character. The best twelve bunches, six blooms in a bunch, came from Messrs. J. STREDWICK & SON, Silverhill, St. Leonards, and they were almost entirely very promising seedlings of his own raising, viz., Comet, a striped variety of the character of Alpha, yellow striped with crimson; Mabel Tulloch, delicate pink, with pale centre; Raymond Parks, orange-red. These three were awarded Certificates of Merit. In addition there were H. F. Robertson, yellow; Miss F. M. Stredwick, blush pink with a faint purple stripe; Miss Stredwick, a very promising white; H. J. Jones, salmon-red with a pale centre, &c. Messrs. J. CHEAL & SONS, nurserymen, Crawley, were 2nd, also with very good blooms; they had the new striped Alpha, Mrs. De Luce, Starfish, Lord Roberts, Lyric, &c.

Hardy Herbaceous Perennials.—Collections of these and buttonhole flowers were a fine feature. The best twelve came from Mr. W. H. Tollhurst, gr. to A. D. KLEINWORTH, Esq., who had fine bunches of Aconitum spinosum [?], Montbretias, Aconitum japonicum, Yucca recurva, Echinops Ruthenicus, Campanula pyramidalis, &c. Mr. J. Davis, gr. to E. H. THURLOW, Esq., Uckfield, was a very good 2nd, and there were several exhibitors. Mr. TOLLHURST also had the best collection of twelve bunches of annuals, showing bold examples of Empress Candytuft, Stocks, Lavatera, Scabious, Sweet Peas, Asters, &c. Mr. J. DAVIS was again 2nd, several collections being staged.

Brides and ballroom bouquets were in good character, devices in flowers included anchors, harps, &c., all very tastefully executed; and arrangements of natural flowers and foliage for the centre of a dinner-table were numerous and very praiseworthy.

Fruit was generally good, and Grapes numerous. There were five collections of eight dishes, and the best came from Mr. J. GORE, Polegate, who had good examples of Madresfield Court and Muscat of Alexandria, Violette Hâtive Peaches, Elruge Nectarines, Plums, Figs, Melons and Apples. Mr. E. Earl, gr. to O. E. GOLDSCHMID, Esq., Somerhill, Tonbridge, was 2nd; he had the same varieties of Grapes, Early Silver Peaches, Lord Napier Nectarines; and Mr. A. B. Wadds, gr. to Sir W. D. PEARSON, Bart., Paddockhurst, was 3rd.

Mr. T. OSMAN, The Gardens, Ottershaw Park, Chertsey, came 1st with three good bunches of Muscat of Alexandria; and Mr. C. Jones, gr. to H. WOOD, Esq., was 2nd. Mr. H. Manton, gr. to the Rev. R. MASHITER, Hurstpierpoint, was 1st with three well-finished bunches of Black Hamburgh; Mr. T. OSMAN was 2nd. The best two bunches of any variety of Grape, the trade excluded, were those of Muscat of Alexandria, from Mr. OSMAN; and Mr. E. EARL came 2nd, with Madresfield Court.

Melons were shown in two classes, several being staged in each. Mr. A. Verral, gr. to F. S. SHENSTONE, Esq., Barcombe, took the 1st prize with two dishes of Peaches, having good fruit of Barrington and Princess of Wales. The best single dish was a seedling yellow fleshed fruit from Mr. E. LAWRENCE, Tonbridge. Mr. GORE had the best two dishes of Nectarines in Elruge and Lord Napier; Mr. EARL was 2nd with Pitmaston Orange and Lord Napier. Plums and Cherries were only sparingly shown; Apples and Pears also, small throughout.

Vegetables were shown in good character. The special prizes offered by Messrs. BALCHIN & SONS, J. E. DAVIES & SONS, and TILLEY BROS., brought numerous exhibits.

Messrs. J. CHEAL & SONS offered special prizes for nine varieties of Cactus Dahlias, three blooms of each, several collections being staged.

Mr. J. A. FORD offered special prizes for six Celosias, fine spikes of the feathery varieties being staged.

Miscellaneous.—Messrs. W. BALCHIN & SONS, Brighton and Hassocks, filled one end of the Corn Exchange with a really fine collection of foliage and flowering plants of high quality, fine specimens of Dipladenia Brearleyana, and the fine white Anthurium Laingi were conspicuous, and a further collection of bunches of shrubs. Messrs. THOS. RIVERS & SON, Sawbridgeworth, had one of their unique collections of fruiting trees in pots, such as Peaches, Nectarines, fine early Plums, Grapes, &c. Messrs. G. PIPER & SON, nurserymen, Uckfield, had a large collection of Roses, which included Sunrise, and a sulphur coloured sport from G. Narbonnand, which Mr. Piper states will prove a valuable bedder. Messrs. J. CHEAL & SONS, Crawley, had plants, cut flowers, foliage, &c., including Dahlias; and there were some small exhibits.

ALTON HORTICULTURAL.

AUGUST 20.—The first horticultural exhibition that has taken place at Alton, Hampshire, during the past twenty-six years, was held on the above date in Anstey Manor Park, the residence of Mr. Gerald Hall. The event was considered to be satisfactory, it being the first effort, and a good display was made. A sum of £41 5*s.* 6*d.* was given in prize-money, and £35 was collected at the gates. The hon. sec. is Mr. W. B. Trimmer, and the president, Mr. H. P. Burrell. It is hoped that it will be found possible to arrange meetings during the winter months for the discussion of horticultural subjects.

TROWBRIDGE HORTICULTURAL.

AUGUST 20.—This was the fifty-third exhibition of this popular west of England Society, which in the course of its existence has been able to acquire the ownership of the large field adjoining the railway-station, which is known as the Show Field—a most valuable asset. One of the finest displays ever seen in Trowbridge was staged on this occasion, the weather was gloriously fine, and there was a very large attendance, which seems to be a characteristic of west of England flower shows.

Fuchsias, for which Trowbridge is famous, were many and in splendid character, plants averaging 7 and 8 feet in height, finely grown, and grandly bloomed. Mr. GEO. TUCKER, nurseryman, Hilperton, who has taken a decided lead as a cultivator of Fuchsias in the west, was placed 1st with six, and also with four specimens; in the former class he had of dark varieties, Doel's Favourite, Charming, Final, and Brilliant; and of light varieties, Mrs. Bright and Western Beauty, the latter a very fine Fuchsia. E. T. FOXCROFT, Esq., Henton Charterhouse (gr., Mr. H. Chislett), was 2nd, having very good plants of some of the foregoing; and E. HATCHLEY, Esq., Rodwell Hall (gr., Mr. E. Helps), 3rd. The plants taking the 3rd prize were much in advance of what is seen at some large shows during July and August. Mr. TUCKER'S four plants were Charming and Bountiful, dark; M. H. Roberts, medium; and Western Beauty, light. Mr. FOXCROFT was again 2nd; and Mr. H. POCOCK, Hilperton, 3rd.

At Trowbridge the specimen stove and greenhouse plants which are exhibited in such good character are all locally grown. The recent death of Sir W. R. Brown, Bart., Blithefield, led some to suppose that the fine collection of stove and greenhouse plants formed in his garden would be dispersed. It is satisfactory to know that a local resident (W. J. Maur, Esq.) has become the tenant of Blithefield, and he has taken over the collection of plants, and the late Sir Roger Brown's able young gardener, Mr. H. Matthews, and the plants still find a place at the Trowbridge shows, for Mr. MAUR was 1st with twelve well-grown and flowered specimens, chief among them Erica Eweriana elegans, Ixora amabilis, Rondeletia speciosa major, Allamanda Hendersoni, Clerodendron Balfourianum, and others; and Mr. GEORGE TUCKER came 2nd, also with very good specimens.

With six specimens, which included another fine piece of Erica Eweriana elegans, Mr. MAUR was again 1st, and Mr. GEO. TUCKER 2nd.

With three specimens, Mr. MAUR took the 1st prize, and Mr. ATCHLEY the 2nd.

A fine Codiæum Chelsoni from Mr. MATTHEWS was the best specimen foliaged plant, and he had the best flowering specimen also, staging a fine piece of Dipladenia Brearleyana.

Cockscombs, zonal Pelargoniums, and Liliums were, as is usual, excellent features. Mr. MATTHEWS was 1st with six nice specimen Heaths; and excellent Gloxinias were shown in two classes for six specimens.

Tuberous-rooted Begonias were in the form of large and finely-grown and bloomed plants. Mr. W. H. FRY, Trowbridge, was 1st, with six single varieties; and Mr. GEO. TUCKER 2nd, with the same number of doubles. Mr. MATTHEWS was 1st with four very creditable specimens of Orchids; and Mr. E. VINER, Frome, was a good 2nd.

Groups of plants formed a very attractive item; in the class for a large one Mr. E. H. ATCHLEY was 1st, with good plants well arranged; and Messrs. E. S. COLE & SONS 2nd in the smaller group. Mr. KEMP was placed 1st, and Mr. W. Strugnell, gr. to Col. VIVIAN, Rood Ashton, 2nd.

Ferns, shown in collections of twelve, are always a leading feature at Trowbridge. Mr. GEO. TUCKER was 1st with bright even examples; and Messrs. J. STOKES & SON, Bath, were 2nd. Adiantums, especially, were finely developed.

The best collection of nine variegated and ornamental foliage plants came from Col. VIVIAN. Palms and Codiæums were in fine character. Caladiums and Coleus were shown in good character.

Cut flowers included Asters, quilled, flat petalled, and Comet types; and Mr. W. J. JONES, Bath, showed in all classes excellently well. Roses were a leading feature, and much more numerously exhibited than usual. Messrs. PERKINS & SONS, Coventry, were there with brilliant H.P.'s and lovely Teas; and took 1st prizes for twelve trebles, for thirty-six, twenty-four, and twelve blooms; Messrs. TOWNSEND & SONS, Worcester, were 2nd in the foregoing classes, but with twelve Teas and also with twenty-four blooms, the Worcester firm carried off the honours; while Messrs. GEO. COOLING & SONS, Bath, were 1st with eighteen excellent bunches of garden Roses and admirably staged.

Cut, Stove, and Greenhouse Flowers were very good from Mr. H. Matthews; Messrs. J. Stokes & Son were 1st with twenty-four bunches of hardy perennials and biennials; Mr. Lawes, Hilperton, taking the 2nd prize, both with capital bunches.

Dahlias were good; the best collection of twelve show varieties came from Mr. Geo. Humphries. Mr. T. Carr, Tiverton, was 1st with six admirable bunches of singles; while Messrs. J. Gray & Sons, Frome, had the best twelve bunches of Pompons and six bunches of Cactus, showing remarkably well. Gladioli, Sweet Peas, and zonal Pelargoniums, were all very good; and Messrs. Blackmore & Langdon, Bath, took the 1st prize with twelve blooms of Carnations and Picotees.

Fruit.

Mr. W. Strugnell, gr. to Col. Vivian, Rood Ashton, Trowbridge, had the best collection of ten dishes, having in good character White Muscat and Black Hamburgh Grapes, Sea Eagle Peaches, Early Rivers Nectarines, Figs, Melon, Apples, &c. Mr. H. Jones, Bath, was 2nd. Mr. Strugnell was also 1st with six dishes, and Mr. Jones 2nd. Mr. Strugnell was 1st with three good bunches of Alicante in the black Grape class; and also in that for black Muscats, having Madresfield Court. Mr. Helps was 1st with white Muscats.

Several Melons were staged. There were good Peaches, Nectarines, and Apricots in the single-dish classes; Plums were not so good as usual; Apples and Pears scarce.

Vegetables, always good at Trowbridge, were very fine throughout. The special prizes given by Messrs. Sutton & Sons and Webb & Sons brought fine exhibits in the open classes; while the cottagers made a very fine display from the allotment and cottage gardens.

ROYAL HORTICULTURAL OF ABERDEEN.

August 21, 22, 23.—In beautiful weather at first, but which unfortunately did not prevail throughout the three days, the annual show of the Royal Horticultural Society of Aberdeen took place on the above dates in the Central Park. The exhibits were arranged in three large marquees, ranged along the south side of the park, while there were other marquees occupied by local nurserymen, and the remainder of the park was set apart for other attractions, which were in progress during the three days. This year the entries numbered 1,500, as compared with 1,355 last year, the increase taking place in all the sections with the exception of vegetables. Taken as a whole, the good quality of the exhibits was surprising, considering the coldness of the season. Not a few intending exhibitors no doubt held back their productions, owing to their being so much behind those of former years.

Pot Plants.—The gardeners made a grand display with pot plants, a display which was rendered all the more striking by the new arrangement introduced this year of accepting double entries. The prize for the circular group of stove or greenhouse plants, 10 feet in diameter, was worthily carried off by Mr. J. Proctor, gr. to Sir W. Henderson, of Devanha, Aberdeen. The exhibit consisted of Codiæums and other handsome foliage and flowering plants.

Mr. W. Kilgour, gr. to Mr. Webster, Edgehill, Aberdeen, was 1st for the best specimen plant in flower with a gorgeous Disa grandiflora with over 100 blooms, and considered to be one of the finest specimens to be found in Scotland. Mr. J. Proctor, maintained unbroken his record for the best six table plants.

Mr. Sim, gr. to Mr. Murray, Glenburnie Park, was 1st for Ferns, with superb specimen Adiantums, Davallias, and Gymnogramma chrysophylla. Mr. A. Douglas, gr. to Mr. Thomas Ogilvie, of Kepplestone, came to the front worthily with a splendid exhibit of Petunias; while Mr. Sim took the lead for Gloxinias.

The following gentlemen, other than those already mentioned, took premier positions in this marquee:—Mr. A. Grigor, gr., Fairfield, Ferns, Pelargoniums, zonal Pelargoniums; Mr. A. Gillespie, Northfield, Aberdeen, Fuchsias; Mr. J. Jenkins, Aberdeen, Begonias; and Mr. J. Anderson, Aberdeen, Chrysanthemums.

In the amateur division, the best table of greenhouse plants was sent by Mr. J. M. Simpson, Varnie Bank, which was very tastefully arranged; while Mr. W. Silver, Auchmill, showed Ferns; and Mr. J. Jenkins, Clifton Road, Aberdeen, had a fine display of tuberous-rooted Begonias. The competition among the working-classes was much more keen than hitherto, the Fuchsias especially being a fine show.

Cut Flowers.—The cut flower section was alone a very delightful show, particularly the Roses of Messrs. D. & W. Croll, Dundee, which carried off the leading honours for Roses. In their collection of thirty-six were beautiful blooms of Bessie Brown, Mrs. John Laing, Marquise Litta, Captain Hayrwood, Duke of Edinburgh, Annie Wood, and Prince Arthur. The 2nd prize in this class was awarded to Adam & Craigmyle, Aberdeen, with a collection of almost equally handsome blooms.

Messrs. Croll's collection of Tea Roses, which earned for them premier honours, contained superb specimens of Maréchal Niel, Cleopatra, Rubens, White Madame Cochet, and Mrs. Edward Mawley.

For Dahlias, Mr. Alex. Grigor, Fairfield, and Mr. W. Wood, Priory Hill, Culter, took premier honours.

Mr. W. Scorgie, Rubislaw Den House, had the best collection of twenty varieties of cut flowers and fine foliage bedding plants, also annuals best adapted for flower-garden decoration.

Fruit.—Despite the cold and sunless season, the display in this section was really astonishing; this, however, being due not a little to southern exhibitors. The 1st prize collection of fruit of nine dishes, open to professional gardeners, and sent by Mr. A. Hutton, Usan House, Montrose, was a superb display, especially the Strawberries, Peaches, and Melons. All over, Strawberries were very meritorious, and those sent by Mr. J. Smith, gr., Cloghill, Countesswells, Aberdeenshire, formed a meritorious display. For Cherries, Mr. Kilgour, gr., Edgehill, Aberdeen, was 1st. Raspberries were a very large entry.

For Grapes, Peaches, Apples, and Plums, Mr. Hutton, gr., Usan House, Montrose, was worthily 1st; and for Jargonelle Pears, Mr. J. Grigor, gr., Elgin, won with beautiful specimens; Mr. Hutton, being 1st with any other variety of Pear.

Vegetables.—Though less in number of entries than last year, the show of vegetables consisted of some fine produce; market-gardeners competing in this section against professionals.

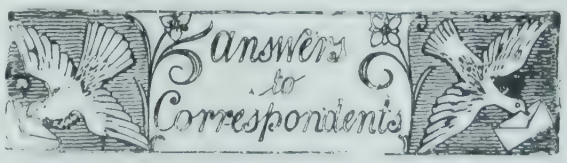
The names most prominently displayed in this marquee were Mr. A. Grigor, Fairfield (Carrots); Mr. A. Douglas, Kepplestone (Cauliflowers); Mr. A. Howie, Drumtochty (Cucumbers); Mr. A. Hutton (Leeks); Mr. William Lawson, Oakbank School (Potatos); Mr. John Yule, Rothiebrisbane (Potatos); Mr. Frank Kinnaird, Broomhill (Turnips); Mr. W. D. Kirton, Ellon (Beetroot); and Mr. William Harper, Tulliebelton, Perthshire (Celery).

Special Displays.

Undoubtedly what proved to be one of the most delightful features of the exhibition were the non-competitive exhibits of the leading nurserymen and florists in the north, viz., Messrs. W. Smith, Market Street, Aberdeen; Messrs. Ben Reid & Co., Aberdeen, the King's nurserymen and florists; Messrs. James Cocker & Sons, Aberdeen, who displayed a collection of Roses and herbaceous perennials.

TRADE NOTICE.

We are informed that Mr. J. E. Sadler, who has represented Messrs. Jas. Backhouse & Son, Nurserymen of York, for upwards of twenty years, has severed his connection with that firm and joined the staff of Messrs. Richard Smith & Co., Nurserymen and Seed Merchants of Worcester, whom he will represent in the future.



***** Editor and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the Publisher; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the Editor. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.**

Agaves: *T. A. J.* The fullest and best account is that of Mr. Baker, published in our columns with very numerous illustrations in 1877. Mr. Baker's *Handbook of the Amaryllideæ* contains a reprint of the articles, but without the illustrations.

Bordeaux Mixture: *T. W.* Take 2 lbs. sulphate of copper and mix well with water in a wooden tub, and 2lbs. of fresh slacked lime, with enough water to liquify it in another, and finally add these together in one vessel and pour in twenty gallons of water.

Carnations: *H. F. H.* The specimen, No. 2, is very likely to be a sport from the variety J. B. Bryant, especially if you have been particular to keep the plants true to name.

Caterpillar in Blanc Mange Powder-box: *Correspondent.* That of the Privet Hawk-moth.

Chrysanthemums: *Curtis.* The injury to the flower-buds is due to earwigs, which are particularly fond of Chrysanthemums and Dahlias. A good trap for them may be made by inverting a small pot half filled with hay upon a stick at the top of each plant. Examine these frequently, and destroy the insects secreted in them.

Codlæums: *N. D.* Elegantissimum, Johannis, Evansianum, Queen Victoria, Warreni, Neumanni. The choice of varieties depends greatly upon the use to which the plants will be put, and in this matter your note gave no information.

Coke versus Coal for Heating Boilers: *T. N.* Your question would occupy more space for a full answer than we can spare. In a general sense it may be taken that a ton of coke will produce as much heat as the ton of coal from which it was produced, but the composition of the various kinds of coal and of coke differ so much. Take for example the two extremes of Caking coal with 75·28 of carbon, and anthracite from Pembroke with 92·43; and the other constituents of coal as hydrogen, azote, and oxygen, differ considerably in amount. Oven coke has more heating power than the residue coke of gas-retorts. The chief advantages of coke over coal as fuel for tubular boilers are less fouling of the tubes and flues, cleaner stoking, and a lessening of the quantity of smoke emitted from the chimney; and as a set-off against these may be mentioned more careful and more frequent stoking, and proper regulation of the dampers.

Conifers, Books on: *T. Lee, California.* We do not know for what purpose you require them. For general garden purposes, *Veitch's Manual* (1900), to be had of Veitch & Sons, 544, King's Road, Chelsea, or the *Report of the Conifer Conference*, 1891, to be had at the office of the Royal Horticultural Society, 117, Victoria Street, London. We can cite others, if these are not sufficient for your purpose.

Corrections: Potato Trials at Chiswick.—We regret that in the report of the trial in our issue of August 14 it was stated that Messrs. Sharpe & Co., Sleaford, sent "New Century" Potato for trial, and we now learn it was sent by Messrs. Dicksons, of Chester. —Messrs. Vernon & Barnard, Willaston, Nantwich, were awarded 2nd prize in the class for best collection of twenty-four Cactus Dahlias at Shrewsbury.

Cucumber Leaves and Tomato Plants: *A. S.* The first is affected by Cercospora melonis, and the Tomato by the sleepy disease. See recent issues of the *Gardeners' Chronicle.*

Cucumber stem: *M. Allan.* I find no trace of fungi or bacteriosis. It seems to me to present the commencement of that peculiar corky condition of the cortical layer, whatever may be the cause of it, and that seems to depend upon external circumstances. Surely it is altogether a case of cultivation, or mistake in cultivation. There is no fungus mycelium anywhere. *M. C. C.*

Cucumbers: *Sandy Hill.* The roots are badly attacked by eelworms, so often figured and described in these columns. The creatures

are introduced with the loam used. Turn out all the plants and the soil, and start with fresh loam that has been stacked for two or more years; or if possible, bake the soil before using it.

Ivy-leaved Pelargonium: *Walshaw & Sons.* We cannot undertake to name florists' flowers; you should send them to some florist or nurseryman who cultivates these plants largely.

Laurel: *G. R. S.* Not a fungus, but a mass of "adventitious roots." The stem has been injured in some way, and the plant is probably growing in a damp, dark place. Very probably also the true roots have been injured, or are in bad soil, so that they cannot do their work properly, hence the production of other roots from the stem. We have often seen them under like circumstances.

Lychnis flos cuculi, White Variety: *E. H.* You are quite right. From the locality where you found it, we thought it might be L. vespertina, but your specimen puts the matter beyond all doubt. We never saw the white form of L. flos cuculi before.

Marechal Niel Rose: *Novice.* As the plant has to be transplanted in the course of next spring, cutting back the shoots severely, and mulching the ground over the roots with stable dung about 6 inches thick, as you suggest, is about all that is necessary; but in consideration of the glass protection it has had, the stem should be protected with haybands.

Melon Disease: *J. W.* The Melon plant submitted for examination presented two features of disease, the rotting of the bine at a short distance above the root, and the large round ochrey blotches on the fruit. The leaves did not exhibit the slightest indication of the Melon disease lately described in this journal under the name of Cercospora melonis. The rotting of the bine is very similar to cases which have before come under our notice, and were commented upon in *Gardeners' Chronicle*, June 3, 1893, p. 668. The decayed tissue was full of minute organisms, but whether these are bacteria, and whether they are infectious, can only be determined by persistent examination and experiment. It is problematical whether the disease of the fruit resulted from the affection of the bine, but as the fruit disease is not uncommon when the bine remains healthy, it may be assumed that the fruit disease was not influenced by the rotting of the bine, except in so far as it weakened the constitution of the plant. The disease of the fruit was manifested in a broad circular blotch at the crown of the fruit of an ochrey colour, and somewhat granular on the surface. This disease again came under notice in the *Gardeners' Chronicle*, August 29, 1896, although in this present instance in an immature condition, but with sufficient evidence in the presence of sporules of Glæosporium lagenarium, and also on one fruit of the conidia of Fusarium reticulatum. Reference to the two communications above cited will give all necessary additional information. *M. C. C.*

Names of Fruits: *J. W. Y.* 1, Goliath; 2, Perdrigon Violette Hâtive.—*W. C.* 1, Windsor (very small); 2, Summer Doyenné.

Names of Plants: *Constant Reader* should show his constancy by noticing our oft-repeated request that specimens sent for naming should be good ones, properly packed and labelled. 1, Thuya gigantea; 2, Thuya occidentalis; 3, Pseudotsuga Douglasii, the Douglas Fir; 4, a variety of the Douglas Fir; 5, Picea sitchensis; 6, not recognisable; 7, Hippophae rhamnoides, perhaps; 8, not recognisable; 9, an Elm; 6-9, wretched scraps, quite withered.—*W. H. B.* 1, Peperomia Verschaffelti; 2, Begonia metallica; 3, Abutilon megapotamicum variegatum; 4, Ficus stipularis, often called Ficus repens; 5, Oplismenus Burmanni variegatus, known as Panicum variegatum in gardens.—*H. S., Lincoln.* 1, Selaginella Wildenovii; 2, Adiantum formosum; 3, Pteris serrulata cristata; 4, Scolopendrium vulgare (Harts' Tongue Fern); 5, Selaginella denticulata; 6, Spiræa Douglasii; 7, Begonia metallica; 8, Poa trivialis variegata; 9, Fittonia Pearcei; 10, Fittonia argyroneura; 11, Asparagus plumosus.—*W. O.* Alströmeria aurantiaca.—*W. B.* 1, Spiræa venusta; 2, Actea spicata; 3, Lysimachia punctata syn. L. verticillata; 4, Erigeron (Stenactis) speciosus; 5, Campanula, probably C. lactiflora variety. Not a flower remained; 6, Polygonum cuspidatum. — *J. F.* 1, Olearia Haastii; 2, Diplopappus chrysophyllus; 3, Potentilla fruticosa.—*A. Goodwin.* 1, uncertain; may be Guizotia abyssinica; 2, species of Senecio probably; both arrived very badly withered, and our attempts to revive them were in vain. 3, Stigmaphyllum ciliatum.—*W. G.* 1, probably Hydrangea quercifolia; 2, Ligustrum sinense; 3, not recognised; 4, probably a Japanese Maple; 5, Pinus excelsa probably; 6, Corylus Colurna; 7, leaf only; 8, Tillandsia. We guess as well as the specimens permit. Disregarding concord, we are obliged to say "Davus sum non Œdipus."—*W. C.* Not the true Tarragon; we will try to give you the proper name next week.—*Correspondent.* 1, Lysimachia clethroides; 2, Stachys grandiflora var. rosea.—*W.* Chrysanthemum coronarium. The Dyer's-weed is Genista tinctoria.—*P. J. L.* 1, Deutzia scabra; 2, Deutzia crenata, double-flowered var.; 3, Philadelphus; 4, Philadelphus coronarius; 5, Liriodendron Tulipifera.—*A. C.* 1, Solanum jasminoides; 2, Ruscus aculeatus; 3, not recognised; 4, Ajuga reptans; 5, Ligustrum coriaceum.—*F. M.* We cannot answer such inquiries by post. 1, Cimicifuga racemosa; 2, Polygonum affine; 3, Veronica spicata.—*Warwick.* Delphinium ochroleucum, poisonous.—*J. I. M.* 1, one of the many forms of Thuja orientalis; 2, an evergreen Oak, we cannot tell which; 3, Staphylea pinnata, the Bladder-nut; 4, Leycesteria formosa; 5, Cephalotaxus pedunculata, variegated form.—*G. E. P.* 1, Galeopsis Ladanum; 2, Jasione montana; 3, Allium vineale; 4, Sison amomum.—*W. U.* 1, Monarda didyma, sometimes called Oswego Tea; 2, Lysimachia clethroides; 3, Solidago, perhaps S. canadensis; 4, Alyssum maritimum, variegated.—*W. J. G.* 1, Pinus silvestris; 2, Retinospora leptoclada; 3, 4, 5, 6, Arbutus; 7, Spiræa. How can you expect us to name such scraps without flowers? We give up the task as hopeless. Please send good specimens, and remember that our time is fully occupied.

Passiflora edulis and P. quadrangularis: *C. H. W.* P. edulis succeeds in the greenhouse, and should, like most of the genus, be given plenty of space for the roots; as for the top growth, training out the shoots thinly, more especially if the house is lofty, admits of letting many of the shoots droop from the wires—a capital method of showing off the flowers and fruits. The plan of planting first in pots of moderate size, and repotting once in the course of the summer is to be recommended until the plants come to such dimensions that tubs of 2 to 3 feet in diameter are required, or places found in the borders for them. A suitable kind of soil consists of turfy loam ¾; ⅛ peat, ⅛ leaf-mould, and as much sand as the case requires. Afford good drainage and firm potting. P. quadrangularis is an inmate of the stove, and the treatment to be adopted is the same as that given to P. edulis.

Peach-leaves, &c.: *H. F.* The growth has been arrested, from what cause we do not know. The Begonia-leaves are affected with the mite, and the Celosia also. Tobacco-water is the best remedy for the mite. For the others we cannot say, unless we knew all the circumstances.

Quasiqualia: *H. C. D.* Probably Quisqualis is meant. This is a genus of Combretaceæ, confined to tropical and subtropical countries, and consisting of scandent shrubs.

Raspberry Cane: *Inquirer.* The injury, whatever it is, is quite superficial, the green inner bark being quite healthy. We have seen similar discoloration and death of the rind when the canes have been tied up to galvanised wire supports.

Raspberry Plants Going Off: *R.* It may be caused, as you suggest, from the exhaustion of the soil, of those constituents the Raspberry needs. The growth is extremely thin and weak. Twenty years is a long period of time for a piece of land to be under one kind of crop, and sooner or later the collapse of the plants must be looked for. It would be advisable in making the new plantation to use healthy sets from another garden.

Red Spider on Vines: *H. T.* Collect all the foliage and burn it. Shovel off the crust of soil from the Vine border; lime wash the walls, putting flowers-of-sulphur into the wash and scrub with hot water and soft soap all other surfaces. In the winter dress the Vines with Gishurst Compound-soap at a strength of 3ozs. to the gallon of water.

Rose Shoots Dying: *H. C.* We are sorry we are not able to tell you the exact cause of this very common occurrence. It arises sometimes from frost. The Rose is a very highly bred plant, with ancestors of varying degrees of health and robustness. If they have not the health of a wild plant growing under natural conditions, it cannot be wondered at. Time does not allow of our answering such enquiries by post.

Sanguinaria canadensis: *J. M., Pittsburg U.S.A.* A well-known inhabitant of British gardens.

Tomatos: *J. C. W.* The rust on your Tomatos is due to a fungus. Burn the affected plants, and spray the other plants with Bordeaux Mixture, or with a solution of liver-of-sulphur, ½ oz. to 1 gallon of water.

Vines: *W. R.* The Vines seem thoroughly out of health—from what cause we cannot precisely say. There are warts which indicate too much moisture and too little ventilation, red-spider, &c. It would be advisable to ascertain the state of the roots and border.

Vine-leaves Disfigured: *L. Down* and *H. E.* See our reply to "F. H.," p. 128, in our issue for August 16 last. The disorder appears to be very prevalent this year, and it behoves cultivators to take measures against its spreading in vineries.

White Grapes Injured: *W. J. G.* Shanking and over-feeding account for the appearances noted.

Communications Received.—G. N., Hatfield.—A. B.—H. T.—J. A. H. J.—G. S.—H. J. E.—J. R. J.—Kelway & Son.—C. T. D.—D. C.—W. W. N.—Parsons & Co.—L. Möller, Erfurt.—J. V. & Sons.—F. Heinemann, Erfurt.—G. H.—G. N.—G. M. W. (with thanks).—R. Istituto Sperimentale Scafalti.—F. A. W., Amherst, Mass.—J. R. I. (photo, with thanks).—A. D.—A. C. F.—J. L.—J. J.—Jno. S.—H. T. M.—R. L. C.—W. M.—H. J. Elwes.—P. T. M.—R. D.—N. E. B.—J. W.—W.P. B.—O. T.—G. B. M.—E. C.—H. E. J.—W. C. D.—Corycium senex.—Dr. Aug. Henry.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS. — *The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper, more than*

☞ TREBLED. ☜

Advertisers are reminded that the "Chronicle" circulates among Country Gentlemen, and all Classes of Gardeners and Garden-lovers *at home, that it has a specially large* Foreign and Colonial Circulation, *and that it is preserved for reference in all the principal Libraries.*

(*For Markets and Weather*, see p. viii.)

THE
Gardeners' Chronicle

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"SPEARGRASS."

WHEN Shakespeare pourtrayed Falstaff hacking his sword to make of it a witness to his courage, and the no less cowardly Bardolph and his companions tickling their noses with Speargrass to procure them blood to stain their garments, he would little think of the trouble he was entailing on succeeding ages in the endeavour to identify that plant of gore. Leo Grindon has submitted the common Yarrow and the Horsetail as the two most likely plants. Both, in olden times, were known by the name of Nosebleed, to which title the Equisetum holds the prior claim; and when the question, Which is the more likely to produce an outflow of blood? is asked, the latter no doubt is the plant. At the same time the Yarrow is the more popular, as in the couplet murmured by East Anglian maidens when trying a love-charm—

> "Yarroway, Yarroway bears a white blow,
> If my love love me, my nose will bleed now."

Then we have the claims of the common reed called "Speir" by Lyte, put forward by Dr. Prior; but in favour of any one of these there is no evidence known to exist.

Canon Ellacombe, on the other hand, considers the common "Couch" as the plant, and the underground stolons the parts employed, though it must be apparent to everyone that there would be less difficulty in securing in a hurry the parts above-ground, and which would no doubt be equally effective in this kind of phlebotomy. Moreover, Bacon seems to refer to Triticum repens in the following passage: "Where alleys are close gravelled, the earth putteth forth the first year Knot-grasse, and after Spire-grasse. The reason is for that the hard gravell or pebble at the first laying will not suffer the grasse to come forth upright, but after that the earth is somewhat loosened at the top, the ordinary grasse cometh up." In Markham's *Cheape and Goode* it is not impossible, but very improbable, the same plant is referred to.

Judging from the purpose for which it was employed, I am inclined to believe that Ranunculus flammula is intended, as it is in other instances to be mentioned. To cure an ox of a swollen dewlap, a slit 4 inches in length was made in the part affected, and "a handfull of Speare-grasse or Knot-grasse" was thrust into the wound, which thereupon was sewn up. According to Sinflect's *Countrie Farme* the root of Sowbread or Nettles was used for a like purpose. In Markham's edition of the book last named, the farmer is warned against these "grosse and filthie weeds, Stump-grasse, Knot-grasse, Peny-grasse, Speare-grasse, or Burnet," in a meadow. That the Spear-grass in this instance was not "Couch," may be inferred from the latter occurring in the immediately preceding paragraph as "Quitch-grasse (called Dog's-grasse)." Without being named it may be referred to in another chapter, where "Burnet, Peny-grasse, and other thick-leaved weeds" are condemned. The reason of these weeds, which obviously were extremely plentiful, being condemned was on account of their unsuitability either for haymaking or for grazing, the latter fact being indicated in another book. "The grasse which is unwholesome for Sheepe is that which hath growing amongst it Spearewort, Pennywort, or Pennygrasse, and any weede which grow from inundations; likewise Knotgrasse is not good, nor mildew'd grasse." It will be remarked how the same weeds are so often named in conjunction or by inference, and how the Hydrocotyle is called a "grass" and a "wort," a not uncommon practice, as also occurs with the Spearwort or Speargrass, another common name of which was Spear-Crowfoot, and also "Banewort, because it is deadly and dangerous for sheep—it inflameth their livers, fretteth and blistereth their entrails." Till a late period, Ranunculus flammula was employed in the Hebrides as a rubefacient; and Gerarde remarks on its value for the same purpose. By the name of Speargrass it occurs in a sentence quoted in Mr. Ellacombe's delightful *Plant Lore of Shakespeare*, naming it as a cure for sciatica, used in exactly the same manner as advised by Gerarde.

Inferentially we may suppose the name to have been very common and the plant well known, and therefore requiring as little to be identified as Knot-grass, Penny-grass, or Burnet. From the evidence of contemporary writers, it is, I think, sufficiently well established that Ranunculus flammula, the Spear-wort, was also on occasion called Spear-grass, and that Triticum repens also was recognised by the same name. Which of these the great poet had in his mind is, however, quite another matter. If he was not Shakespeare, but Lord Bacon, the Couch-grass is inevitably the plant; but those who entertain no doubt as to the identity of the poet must, I am afraid, remain content to leave that of Spear-grass so far an open question as to admit either of the plants named. It is, of course, assuming too much to consider the leaves the sole means of "ticking." Stems also may have been used. *R. P. Brotherston.*

BAGSHOT PARK, SURREY.

THE gardens of H.R.H. The Duke of Connaught, at Bagshot Park, are of exceeding interest to the lovers of trees and shrubs. The estate is situated in a district that is famous for the growth of Rhododendrons and hardy Azaleas, which in this part of Surrey not only thrive uncommonly well, but reproduce themselves so freely from seed that the young plants may be seen in the most out-of-the-way places, looking after themselves with perfect success, and appearing even under one's feet in the less frequented gravel walks. It is not surprising therefore that these plants constitute the predominant features in the extensive grounds. They appear to be almost everywhere, in one place in the form of great shrubberies, towering away many feet above the head, or in others forming high and thick hedges, and yet again as isolated specimens upon the grass, where the sun's rays reach all around them, and bloom is produced from every one of the numberless shoots.

The writer does not know whether the Duke of Connaught had a fondness for trees before he went to reside at Bagshot, or whether his appreciation for them has been stimulated by the marvellous beauty and luxuriance they exhibit there, but it is certain that for many years past His Royal Highness has planted and tended many species of Conifers, not to mention the smaller shrubs, with the greatest enthusiasm, and many of those that were planted earliest in what is known as the Duke's own pinetum have developed into specimens of such size and beauty as worthily excites their royal owner's pride.

When the exacting duties in the busy life of the Duke allow him to spend a few days or weeks at Bagshot, it is in the gardens that he passes the greater part of his time, and so often does he walk over them with his head gardener, Mr. C. W. Knowles, discussing the progress individual specimens have made, that he appears to know each specimen personally.

A good representation of the dwelling-house is afforded by the supplementary illustration to this issue. The building is of red brick, and has white stone facings. It will be seen that the Rhododendrons approach very near to the windows on the side from which the photograph was taken, and there are some upon the terrace in front, the steps leading thereto being distinctly shown in the illustration.

The flower garden is upon the south-west side, and includes several novel designs. One series of beds is cut out of a piece of lawn, resembling in shape the fruit of a Pear; then there is a sunken garden, through which a spiral walk commencing from the ground level winds round until it leads to the lowest point in the centre, where there is an ornamental globe sundial. The view from the front of the house is charming, and is broken by the heights of the Surrey hills in one direction,

whilst a wider range is had in the direction of Camberley.

Bagshot has been visited from time to time by the most celebrated of Royal personages, and the lawn in the near vicinity of the house contains specimen trees planted in memory of some of these. Included amongst them is Abies pinsapo, planted by Queen Victoria in 1880, also Abies lasiocarpa concolor violacea, which is now 18 feet high and of most effective colour, being nearly violet; Tsuga Menziesii was planted by Prince Leopold of Prussia in 1885, and another similar tree of attractive though slender growth was planted by the Duchess of Connaught. The rarest of these memorial trees is that of Abies firma, shown on p. 173. This Japanese species, of which A. bifida is a mere form, is by no means common in this country, but it is one of remarkable beauty, with its erect habit and rigid leaves, that point laterally in two directions, but are more nearly erect than those of most other species. The specimen is about 25 feet high, and is making excellent growth. This tree was planted by the Emperor William when Crown Prince of Germany in 1880.

Some distance from the house is an old orangery, and from this point three long avenues proceed in different directions. The first, which leads to the house, is lined on either side with Azalea pontica in variety, 5 feet high or more, and of very large circumference; the second or middle one is flanked by Rhododendrons from 5 feet to 12 feet high; and a third is of Yew. Two of these avenues are shown in the photograph (fig. 58), which was taken whilst standing with the back to the orangery. It will be seen that the Rhododendrons and Azaleas also are in bloom; but to fully appreciate the floral display they afford, and the fragrance the Azaleas impart to the whole atmosphere of the grounds, the reader must visit Bagshot in the middle of June, when the glories of the place are at their very best.

The magnificent specimens of Kalmia are not less remarkable than the Azaleas, but form grand bushes 18 feet high, and as many through, being covered quite over with bloom in the flowering season. In the next issue of this Journal, illustrations may be given of a Kalmia and an Azalea, both being represented in bloom.

Reverting to H.R.H. the Duke's pinetum, among the many species that are succeeding there, particular note was made of Pseudo-Tsuga Douglasii and Pinus excelsa. In the grounds also is a fine specimen of Cunninghamia sinensis, sometimes called the Broad-leaved Abies. It is from 35 to 40 feet high, but having now got above its shelter, and being thus exposed to the wind, it has lost its leader. In August, this tree has a very distinct effect, appearing of quite a blue colour amongst the other species. Close to the Cunninghamia there stands a beautiful specimen of Araucaria imbricata, not of great height, being about 30 feet, but of perfect symmetry, and in the finest possible condition from summit to base. There are many grand trees of the Silver Fir, and a capital specimen of the Tulip-tree (Liriodendron tulipifera), Magnolias of several species, 20 feet to 30 feet in height; and amongst deciduous native trees the Beeches and Chestnuts are of large and noble proportions.

Three Cedars, at the entrance to the park, planted closely together, have grown into fine tall specimens, and have so adjusted themselves to the limitations imposed by the others, at a short distance away they appear to be one fine tree. They are of great interest.

In a portion of the grounds is a delightful little garden known as the Old Rosary. It is a circle composed of a great high band of purple-blooming Rhododendrons. Approaching from the front, there is a background containing a fine Cedar more than 40 feet high, Hemlock Spruces, and a magnificent purple-leaved Beech. In the centre is a wire stand, where white Roses and Clematis festoon together, whilst as single plants in the grass around are white-flowering Azalea indica and A. pontica seedlings of bright orange-scarlet colour, and many shades of yellow and red. When these are in bloom the picture is a glorious one, and the visitor feels that unless these hardy Azaleas have been seen in a place like Bagshot, where

FIG. 58.—BAGSHOT PARK: SHOWING AVENUES OF RHODODENDRONS AND AZALEAS, AND BAGSHOT HOUSE AT END OF AZALEA AVENUE.

they succeed so well, it is impossible to form a correct idea of the brilliant shades of colour they are capable of developing.

THE GLASSHOUSES.

In the fruit-houses there were excellent crops of Peaches, Nectarines, and Grapes, when the writer visited the gardens at the end of June. Mr. Knowles directed attention to a Peach labelled Belle Beausse, which is generally considered to be a variety of Grosse Mignonne, but this does not appear to be so in this case. Belle Beausse ripens its fruits three weeks earlier than Early Louise, and Grosse Mignonne, growing in similar conditions to Belle Beausse, ripens much later, yet Hogg describes Belle Beausse as ripening a fortnight or more later than Grosse Mignonne. Belle Beausse, at Bagshot, is a free grower, sets its blooms easily, and the fruits are of fairly good flavour. Elruge Nectarine had exceedingly heavy crops, but the trees were swelling up the fruits splendidly. Mr. Knowles obtains most excellent results. Ripe Grapes were on supply from the first week in May, the varieties being Black Hamburgh and Buckland Sweetwater. The Muscat of Alexandria vines bore excellent crops of fruit that would ripen in July. Some old Vines have been renovated, and the results are very satisfactory. A batch of Calanthes in this house were growing well, and the size of their pseudo-bulbs showed how well they had flourished in the previous year. In a house of mixed varieties of the Grape-Vine, Mr. Knowles pointed to one called Vine Cottage, planted in 1883. It is a Black Muscat Grape, and requires the treatment usually afforded Muscats. The Grapes are bigger in bunch and berry than those of Muscat Hamburghs, but they require a longer season to perfect. The variety is said to have been brought to this country by a military officer.

There are 6 acres of kitchen garden in the shape of an oblong, three sides of which are enclosed with plastered walls, all wired for fruit-tree cultivation. On the fourth side a range of glasshouses slope to the south. The garden has an old-fashioned appearance; many of its borders are filled with old perennial plants, as Irises, Lupins, Pinks, &c. There were excellent crops of vegetables, and a fine crop of Peaches on trees against a west wall.

The illustrations in figs. 59 and 61 show that at Bagshot suitable provision is made for housing the gardener and his assistants. Many a young gardener who sees this picture of the Bagshot bothy will sadly wish that such attractive structures were more common, as in common fairness they should be.

During all the time I was at Bagshot rain fell very heavily; but notwithstanding this, the visit was one of interest and pleasure, for the beauty of the noble trees in the grounds and the brightness of the flowering shrubs, together with the fragrance of the Azaleas, were sufficient to compensate for the momentary inconvenience. *P.*

[The photographs of Bagshot, including the Supplementary Illustration, were taken for this journal by Mr. Gregory, Croydon. ED.]

NEW OR NOTEWORTHY PLANTS.

CRASSULA CONGESTA, *N. E. Brown* (*n. sp.*).

THIS very distinct species was sent to Kew from South Africa in 1901, by Mr. H. J. Chalwin, of Cape Town Botanic Gardens, without particulars as to habitat, but it is not improbable that it is a native of the south-western inland region, between Matjiesfontein and Clanwillian. It belongs to the same group as C. columnaris, Linn. f., having the flowers arranged in the same way, in a large, dense, terminal head; the foliage, however, is entirely different. It is of botanic rather than of horticultural interest, although if several plants of it were grown together in a pot, the abundance of flowers would be rather effective.

Plant not more than 3 to 3½ ins. high, very robust. Stem simple or sparingly branched at the base, 2 to 2½ lin. thick, with internodes 2 to 5 lin. long, glabrous. Leaves opposite, spreading, slightly connate, thick and fleshy, 1 to 1⅓ ins. long, 5 to 7 lin. broad at the base, ⅓ in. thick, ovate-lanceolate, somewhat acute, flat on the upper side, very convex on the back, laterally compressed and somewhat keeled at the apex, glabrous, green, not glaucous. Flowers numerous, densely crowded in a sessile terminal head, green, 1 to 1¼ ins. in diameter. Bracts ⅛ in. long, oblong, obtusely pointed, flat, minutely ciliate, otherwise glabrous. Sepals 1½ lin. long, ½ lin. broad, subspatulate, subacute, convex on the back, minutely ciliate, glabrous. Petals five, about 5 lin. long, scarcely ½ lin. broad, united into a tube at the base for about a quarter of their length, linear, obtuse, concave-channelled down the inner face, glabrous, white. Stamens not half as long as the corolla, adnate to the latter up to the top of its tube, with the free part about 1 lin. long; filaments filiform, glabrous, white; anthers yellow. Hypogynous glands, about ½ lin. long, spatulate-obcordate, yellow. Carpels 1¼ lin. long, tapering into a very short style, green. *N. E. Brown.*

THE GENUS ASTILBE.

(*Concluded from p.* 156.)

III.

Since writing the preceding paper, my attention has been drawn to an article by De Boissieu on Astilbe in *Bulletin de l'Herbier Boissier*, 1897, v., p. 683, in which a new species from Japan is described. It belongs to the apetalous section, and will be No. 11 on my list, as follows:—

11. *A. platyphylla*, De Boissieu, *Bull. Herb. Boiss.*, v., 1897, p. 684. Occurs in Yezo.—Whole plant glabrous, except that long reddish hairs occur at the base of the stem and the divisions of the petioles. Leaves large, bi- or triternate; leaflets cordate-ovate, with acuminate apex; inflorescence a compound raceme, loose, composed of long simple racemes; pedicels short; petals absent; stamens eight; carpels elongated.

The same author, l.c. 683, reduces A. chinensis, Maxim, var. japonica, Franchet, to A. Thunbergii, Miq., and he makes it his variety congesta of the latter species. The ordinary type of A. Thunbergii has solitary pedicels and short petals. He distinguishes the var. congesta by the pedicels being approximated into glomerules, and by the petals being most often several times longer than the calyx. This author's view accordingly agrees very well with the opinion expressed at the beginning of this paper, that the Japanese plant, hitherto called A. chinensis, is rather a variety of A. Thunbergii. De Boissieu thinks that typical A. chinensis from China is very distinct from A. Thunbergii, as its petals are pink, and its secondary racemes are extremely dense, not clearly interrupted as in var. japonica. *Augustine Henry.*

FIG. 59.—BAGSHOT PARK: THE GARDENER'S RESIDENCE.

FLORISTS' FLOWERS.

SOME ASPECTS OF THE DAHLIA.

I DO not think it can be truly said of the show and fancy Dahlias that they are played out, owing to their stiff, heavy appearance. For many years past the National Dahlia Society has been holding an annual show of Dahlias, and the foremost place is always given in their schedule of prizes to the large show and fancy flowers. I have been in pretty close touch with the Dahlia trade for many years past, and I am in a position to say that, so far as the leading exhibition varieties are concerned, they have always been in brisk demand, both at home and abroad. There has been no falling off of Dahlia exhibitions about the country, and provincial Dahlia societies which give the large flowers a prominent place in their schedules of prizes, have been formed. Not a few of the show varieties, like Queen of the Belgians for instance, with their rigid yet bold growth, and throwing their noble flowers erect to view, make excellent border plants; they are early to bloom, and they are free and continuous, characteristics which can be found in very few of the Cactus varieties, though there are evidences of sensible improvements in these respects.

When crossing St. James's Park a few days ago, I noticed that the large show Dahlias are being employed as dot plants about the grass, and the passers-by are attracted by the large, symmetrical blooms. The raisers of new varieties of the Cactus Dahlia have had regard largely, if not wholly, in selecting seedlings to those adapted for exhibition purposes, and no agency has had more to do with encouraging this than the National Dahlia Society. A new variety may have preference given to it because its flowers are borne on longer stems than is usual, but that is not by any means complete evidence that it is a good border variety. The present race of Cactus Dahlias is of little or no value for market purposes. A writer in one of the market papers, who is also a raiser of new varieties of Cactus Dahlias, is forced to admit that it is difficult to produce Cactus Dahlias which "combine the highest exhibition ideals with a perfect habit and wiry stem, sufficiently strong to carry a 7-inch or 8-inch bloom as if it were a feather," and he further admits that such are of little value for market purposes; and in addition such flowers "are very bad packers, owing to their long thin petals." We rarely see Cactus Dahlias exposed for sale in flower shops in the height of the season, and many of them (including some of the best exhibition varieties) are so spare of flower that it would be a waste of time and energy to attempt to grow them for the purpose. Even the pretty and symmetrical Pompon varieties, a large number of which are perfect in habit and wonderfully free, seldom put in an appearance in our flower shops. The single Dahlias are too fugacious to be thought of for the purpose. I think an acceptable type of market Dahlia will be found in that recent development, the "Collerette" or "Collar" section, of which President Viger is such an interesting illustration. Here we get a single Dahlia having the addition of an inner layer of white florets resting upon the outer or guard florets, and this combination is likely to render the flowers more persistent and lasting in character, added to the fact that in the case of this particular and interesting variety, the flowers are produced on long stiff stems, and somewhat freely, like D. Juarezii; it is, I think, destined to be the progenitor of a new and valuable race of Dahlias. *Dahl.*

THE ART OF TABLE DECORATION.

(*Continued from p. 92.*)

THE BANQUETING TABLE.—Having given a few examples regarding the decorations of the more homely dinner-table with simple and beautiful hardy flowers, I will now proceed to show the most effective manner in which, I think, it is possible to decorate a table for a banquet or a private entertainment of distinguished guests. Here the decorator has greater scope for his talent, and a more rich and luxurious effect is not only permissible, but imperative; at the same time, the rules governing the arrangement and colouring of the decorations should be as near as possible those before described. I have never hesitated to use on these occasions the best material at my command to enable me to produce the most brilliant and beautiful effect possible, and for this purpose the Orchid family undoubtedly reign supreme.

It is necessary first of all for the gardener to realise the fact that he is given a golden opportunity of not only affording his employers or patrons a special and pleasurable satisfaction by the chaste and beautiful floral adornment of their table, but in a sense he is himself placed, as it were, on his trial in this important part of his duty; and he is poor of soul who cannot draw inspiration from the important nature of his work—remembering that on these occasions he has the privilege of taking a part (a humble one it may be) in the entertainment of some of the fairest and best of the sons and daughters of the Empire.

My first concern with a dinner-table of this description is the centrepiece; a bold, noble, and beautiful ornament it must necessarily be, and should it be one with a central provision to hold a plant or a bouquet of flowers (and I will take it that on this occasion Orchids are chiefly to be used), this centrepiece should give the key-note to the entire arrangement, as being the most conspicuous of all the decorations on the table. I would furnish it boldly with blossoms of Lælia purpurata, or with those of showy Cattleyas, which might be obtainable in quantity at the time, arranging the flowers loosely, with ample space between for the introduction of shoots and sprays of Asparagus tenuissimus nanus, as foils to the colours of the flowers.

Next to the centrepiece on either side there should come a handsome candelabrum, or a similar arrangement for electric light; and next to these, a stand in which to place foliage plants, one on either side, which may consist of Palms, Dracænas, or Codiæums, of a fair commanding height, and next to these on either side there should come candelabra; next to them on both ends of the table an arrangement of cut flowers. These last might consist of Odontoglossum crispum, making use of the graceful flower-scapes at full length, allowing them to droop over the margin of the stands, and employing the same kind of foliage as that in the central piece. The centre line of the table decorations is now complete. The only matter remaining to be disposed of is whether I shall very lightly drape the beautiful tracery and supports of the candelabra and flower-stands with tiny sprays of Smilax, or some other equally fragile creeper. Many experienced persons object to this being done, but I incline to favour the idea, believing that the beauty of the ornaments is enhanced, and the general effect of the decorations improved thereby. There are now two more lines of decorations to furnish, one on each side of the central line already dealt with (making five distinct lines); one line will be the line of the dessert dishes, which is the outside line next to the edge of the table (after allowing sufficient space for the fruit plates, &c.). On a table of this importance, enough fruit should be provided, fresh and preserved, as will form a line right round the table at distances of about 2½ feet apart, and these when artistically arranged in gold, silver, or china vases, add much to the richness of the decorations. The space between the dessert dishes and the centre line of the table on both sides has still to be dealt with, and this is best furnished by moderately high flower-stands, a little higher than the fruit-stands, which should be placed midway between the dessert and the centre line, and be fixed in the angle between each of the centre line ornaments (taking four on each side). These should be filled with sprays of some graceful species of Orchid, not necessarily all alike—say, Miltonia vexillaria, Lælias, Cattleyas, Oncidiums, &c., set off by fronds of Adiantum. This will add a certain boldness and fulness to the decoration, as well as be in harmony with the fruit stands and central decorations, by partly filling in the space between the two with flowers, which should rise to a height midway between the two.

Having completed the arrangements so far, it will be observed that the table between the stands of the centre line present an unfurnished appearance, and to rectify this, small shallow plates of silver, gold, or porcelain should be placed on the cloth between each ornament, and between each of the dessert dishes; on each of these must be placed a lining of paper and a dab of moist clay, covered over with Selaginella or wood-moss, on these tiny mounds must be arranged pretty bouquets of some bright-coloured Orchid — Masdevallia Harryana, if possible. It is wonderful how this simple, bright touch of flowers laid low on the table adds to the brilliancy and effect of the whole arrangement. *Owen Thomas, late Head Gardener to H.M. Queen Victoria.*

(*To be continued.*)

CULTURAL MEMORANDA.

OPHIOPOGON JABURAN FOL. VAR.

THIS is undoubtedly one of the best and most effective decorative subjects among the variegated leaved hardy plants. It is of easy culture, and is admirably adapted for intermixing with other plants on the side stages of greenhouses and conservatories. It is a capital window and vase plant, the narrow arching, gold and silvery leaves, and pale green mid-rib being characteristics which render it indispensable in the composition of groups of miscellaneous plants arranged for effect. The plant is easily increased by dividing established plants and potting the divisions in 3-inch pots in any light sandy garden soil, with which a little leaf-mould may be advantageously mixed, pressing this fairly firm about the roots in potting. Stand the plants closely together in the shade for a few days to re-establish themselves at the roots before exposing them to the full force of the sun's rays, affording water to settle the soil about the roots. Plants growing in large 60, 48, and 32 sized pots are the most useful for decorative purposes, and the plant is so hardy and the culture so easy and simple, as to bring its cultivation within the reach of all householders.

ASPARAGUS PLUMOSUS, &C.

The several species of the South African Asparagus in commerce, are not so well known as their graceful habit of growth, elegant

fern-like foliage, and easy culture entitle them to be. They may be employed with good effect to clothe rafters, pillars, and trellises with twining shoots of their beautiful pale and dark green foliage within a short space of time, either by placing the plants at the base of the spaces to be draped, or by growing them in large pots or boxes varying in size according to the space of trellis or length of rafters to be covered; and when grown in pots 3½ and 4½ inches in diameter they come in very usefully for decorative purposes. The foliage, too, is very serviceable in a cut state, and is in great request in the composition of bouquets and other floral ornaments, such as shoulder-sprays, button-holes, &c. All the species of this genus delight in a strong, rich, sandy, loamy soil as a rooting medium, to which a sprinkling of leaf-soil may be added with advantage. The plants are increased by division of the roots and by seed. In potting, make the soil moderately firm about the young plants, water, and keep close for a week or two in a moist atmosphere to enable them to become established at the roots as quickly as possible, afterwards subjecting the plants to the same treatment as ordinary greenhouse or stove plants, according to circumstances, water being applied at the roots somewhat sparingly at first, increasing the supplies and quantity given as the pots become filled with roots.

Among the cultivated varieties may be mentioned plumosus (flat Fern-like sprays); A. tenuissimus (foliage resembling somewhat that of the common garden Asparagus); A. decumbens, A. falcatus (Sprengeri), a very distinct species, having pale green foliage, and when well established in good-sized pots yield and ripen seed freely almost the entire length of the individual fronds.

EULALIA GRACILLIMA AND E. JAPONICA ZEBRINA.

These hardy grasses are worthy of more extended culture in pots, ranging from 3½ to 4½ inches in diameter, for decorative purposes, than is accorded to them now. The grass-like foliage of E. gracillima drooping gracefully renders it a most useful and highly effective decorative plant, as well as the most beautiful ornamental grass in cultivation, and it contrasts most effectively with the variegated arching grassy leaves of E. japonica zebrina. These plants are of the easiest cultivation possible, and command attention whether growing in pots, beds, borders, or isolated positions in the pleasaunce or flower-garden. They are not particular as to soil. Young plants potted up in good or ordinary garden or field soil, drainage being provided, will flourish and amply repay what little trouble and time may have been bestowed upon their culture. *H. W. W.*

THE LEEDS PUBLIC PARKS AND GARDENS.

THE Parks' Superintendent at Leeds, Mr. A. J. Allsop, having conceived the idea of giving prizes for the best kept of the Leeds parks and gardens, surprise visits were paid to them by the gentlemen appointed to act as the judges, viz., Mr. Clayton, gr., Grimston Park, Tadcaster; Mr. Dawes, gr., Temple-Newsam; and Mr. Frankland, gr. to Sir John Barran, Chapel-Allerton.

On Saturday, August 16 last, the three judges submitted their report to Mr. R. Boston, Chairman of the Property Committee of the Corporation. Six prizes had been offered for competition among the managers of the city's breathing-spaces, the grounds being divided into two classes, according to the nature of the land and the size of the staff available to deal with them. Roundhay Park and Potternewton Park were not allowed to be put into competition. Of the large parks, these gentlemen place Armley Park first, the splendour of the blooms to be seen there, as well as the manner in which the park is kept, contributing to this result. Of the smaller grounds, Chapeltown Recreation Ground is placed first, the extreme neatness of the ground being a factor in the decision.

Large parks (Roundhay and Potternewton debarred): 1, Armley Park; 2, East End Park; equal 3, Woodhouse Moor and New Wortley Recreation Ground; highly commended, Cross Flatts Park.

Small grounds: 1, Chapeltown Recreation Ground; 2, Woodhouse Ridge (old portion); equal 3, North Street Recreation Ground and Hunslet Lake; highly commended, Hunslet Moor and Woodhouse Ridge (new portion).

The report stated that, so far as one of the judges is aware, this is a new development in public park management. We venture to think it a very commendable one, which if repeated from time to time, is sure to bring about good results.

The judges, before commencing their duties, decided upon a number of principles on which to base their judgment, giving marks on each one to every park, as they went around.

In the case of the more newly-formed ones, of which Burley Park is an instance, it was evident their managers were competing under difficulties. The same remark applies to others, for instance, Hunslet Lake-side and the Fountain. In these cases the atmospheric and other surroundings are as bad as they well can be. The judges suggest that as time goes along it may be found advisable to attach names to one if not more of each kind of tree, shrub, and plant,

FIG. 60.—BAGSHOT: SPECIMEN TREE OF ABIES FIRMA, PLANTED BY THE PRESENT EMPEROR OF GERMANY. (SEE P. 170.)

in each park and recreation ground. Now that Nature-study is coming to the front as part of the regular teaching in all elementary schools, it would be an advantage to all concerned to have one part of that study more familiarised than it now is. Seeing that the local governors of our cities and towns of any size will, no doubt, soon have the direct management of elementary education, it would be a good thing for the most progressive city in Yorkshire to set an example in this matter.

REMARKS ON THE FRUIT CROPS.

(*See Summary & Tables, ante, pp.* 69 *&* 72—77.)

(*Concluded from p.* 154.)

8, ENGLAND, S.W.

CORNWALL.—The Peach and Nectarine-trees have not been blistered so badly for a number of years as they were this year, and it having been so cold, the trees have not made the usual amount of growth. The Plum, Cherry, and Apple-trees all bloomed very freely, but having such cold nights the fruit did not set. There has been almost a plague of the Gooseberry sawfly caterpillars on the bushes, and in some gardens not a leaf was to be seen on the bushes. *W. H. Bennett, Menabilly.*

—— Although there was a plentiful show of blossom, the crops on bush, pyramid, and wall trees were ruined by the severe weather in the early spring. The recent spell of dry weather caused many fruits to drop. The earliest Strawberry-flowers were blackened by the frosts, but on the whole the crop was better than expected. Figs are very few. *A. C. Bartlett, Pencarrow, Washaway, R.S.O.*

DEVONSHIRE.—Apples are poor, and below the average. The trees suffered terribly from cold winds, damp, and low temperature in May and June. Trees of Lord Suffield certainly suffered most. Last year I gathered fruits in August, and this year there are very good crops in sheltered places. Pears are an average crop, and trees have suffered less than other fruit trees. Peach and Nectarine trees were much blistered, and the fruit is poor. Strawberries were very fine, and the crop abundant. Other small fruits were plentiful, but late. *Geo. Baker, Membland Gardens.*

—— Taken altogether, there is quite an average show of fruit of all kinds, and the fairly heavy rains that fell during the month of June and again on the 20th inst., when 0·81 were registered in our rain-gauge, materially helped the crop. Apricots and Pears are thin on some trees, but what fruits there are promise to be of fine size. Peaches and Nectarines are an even large crop and the trees more than usually free from red spider, thanks again to the rain. Plums are abundant on some trees, notably Pond's Seedling, Czar, and Belle de Septembre, the latter a variety which never fails here. Small fruit of all kinds are very abundant. *J. Mayne, Bicton Gardens.*

—— Peaches in the early stages were a heavy crop, but owing to the trees being attacked by curl, they were almost denuded of their leaves, consequently many of the fruits fell off. Gooseberries and Currants suffered from late frosts or the crop would have been a heavy one. Strawberries were unusually good; Plums very few, excepting Denyer's Victoria and the Czar. Apples and Pears promised well, but the cold harsh winds while the trees were in blossom prevented a good set. Trees of Lord Suffield have the heaviest crops. Cob nuts are a very heavy crop. *T. H. Slade, Poltimore Park Gardens.*

MONMOUTHSHIRE. — Although there was abundance of bloom on Apple-trees throughout this district, the crop of fruit is again below the average. In exposed places, the rough and cold winds that prevailed whilst the trees were in flower did much damage, and insects have been very troublesome. On orchard standards, where the usual remedies were not applied, the caterpillars of the winter moth were very destructive, in some instances almost denuding the trees of foliage. Pears look well, and carry a good crop of clean fruit. Apricots and Peaches set so well as to require much thinning. The Strawberry season was a short one, but the fruits were of large size and good flavour. *W. F. Wood, Llanfrechfa Grange Gardens, Caerleon.*

—— The fruit crops generally look much under the average condition of things. The blight has played sad havoc with the trees, and also disfigured the fruit in a number of cases, notwithstanding spraying and other precautions. Fine clean fruit will be the exception and not the rule this year, so far as my experience goes at present. *Jno. Lockyer, Pontypool Park Gardens.*

—— What promised early in the year (taking hardy fruits collectively) to be an abundant fruit season, has proved to be a very disappointing one. This, in our case, is not so much the result of frost as of the prevalence of low temperature, accompanied with cold winds, during the blossoming period. Bush and standard Apples generally carry light crops, the best being Spiral Pippin, Lane's Prince Albert, Frogmore Prolific, King of the Pippins, Sturmer Pippin, Worcester Pearmain, Wealthy, Belle de Pontoise, Grenadier, Duchess of Oldenburgh, Seaton House, Lord Suffield, Lord Grosvenor, and Beaumont's Red Reinette. Bush Plums generally have thin crops, and similar remarks apply to Pears; while Cherries, except Morellos, are a complete failure. Peaches and Apricots are satisfactory, and the trees are clean and healthy. Strawberries, including Trafalgar, were plentiful and of excellent quality. Raspberries are not quite so good as usual, aphis having been more troublesome than I remember them to have been. *T. Coomber, The Hendre Gardens, Monmouth.*

SOMERSETSHIRE.—The fruit trees generally suffered greatly from the cold winds in the spring. On June 28 I noticed in several gardens, after having two or three very hot days, that many of the young Plums (of the dark variety) were quite dried up. Can any of your readers kindly give the reason? *William Hallett, Cossington, Bridgwater.*

WORCESTERSHIRE.—Generally speaking, the hardy fruit crops are much below average. Although the trees bloomed splendidly, a long spell of cold damp weather during the blooming period reached the climax on May 14, when it commenced to freeze at 8 P.M. and there were 6° of frost at 10 P.M., and down to 10° during the night, consequently there were several hours of sharp frost following rainy weather which swept off the blossom wholesale. This tremendous check was followed by a plague of aphis and other injurious insects, and were most difficult to deal with. *William Crump, Madresfield Court Gardens, Malvern.*

—— The cold late season must be the reason of the unsatisfactory state of the fruit crops generally. The weather being more favourable whilst the Peaches and Apricots were in bloom must be answerable for these fruits being better than the majority of others. In this garden the Apple crop will be fair, but this is not general in the district. Early Prolific, Pershore, Czar, and Victoria Plums are bea ing good crops, also Gages on west wall The attack of aphis has been severe. *A. Youn Witley Court Gardens, Stourport.*

WALES.

GLAMORGANSHIRE. — Apple and Pear tre gave great promise of bearing an abundant cro Both flowered profusely, but the frosts an cold biting east winds injured the flowers, an the result is a complete failure, with fe exceptions. Of Apples, Lord Suffield and Cox Orange Pippin are the best, and of Pear Williams' Bon Chrétien, and Beurré Bos The young shoots of the Apple trees have bee badly injured with black aphis this seaso Strawberries were late in flowering an escaped injury from frost, and the crop h been very good. Plums scarce, and bad infested with green fly. Peaches, Nectarine and Apricots are very good in this distri considering the cold late season. *A. Pettigrew The Gardens, Cardiff Castle.*

—— The fruit crop in this district is f above the average [!], but owing to the col weather all through May and part of June, a kinds of fruits are quite three weeks later tha last year. I never remember Plums, Cherrie Red and Black Currants to be so much i fested with aphides, which is no doubt owin to the series of cold nights and day tempera tures during the flowering time. Apples ar bearing a very heavy crop in many cases, an the fruits will require much thinning. Pear Plums, and Cherries, set heavy crops, bu quite half has fallen, and still left quite a average crop. Peaches and Nectarines ar far above the average, and the trees clea and healthy. Strawberries have been a heav crop. Last year we gathered our first fruit on June 2, and this year on the 26th of th same month. *R. Milner, The Gardens, Margam Park, Port Talbot.*

PEMBROKESHIRE.—Apples bloomed well thi season, but owing to the very cold, we weather which prevailed, but very few set all varieties suffered alike. On walls we hav heavy crops, and there is also a fair set o fruit in warm, dry gardens. The best se of Apples I have seen this season is in sloping garden facing east, which may be ac counted for by the fact that nearly all ou storms of wind and rain in this district com from the west. Pears are much injured b fungus, especially varieties of the Mari Louise type. Strawberries would have been heavy crop, but they rotted on the ground owing to the damp; the newer varietie appear to be very subject to it, if the weathe is very damp when ripening. *Geo. Griffi Slebeck.*

IRELAND.

ARMAGH.—Apples are very largely culti vated in this district (Loughgall), probabl 1,000 acres. This year the crop is almost total failure, and this is principally due to th late frosts, and the Apple-moth which has bee very destructive. Strawberries are also largel cultivated; the fruit was small and qualit good, and the crop was over the average Black Currants and Plums yielded a very ba crop, and green-fly has been terribly destructiv on most small bush fruits. Peaches, Apricots Nectarines, and Nuts are not grown locally Plums are good in sheltered gardens and o walls, but quite a failure in exposed situations *W. R. Spencer, The Manor Gardens, Loughgall Armagh.*

DOWN.—Owing to the cold wet spring, al fruits are quite three weeks later than usual There was a magnificent show of bloom o Apples, but it rained nearly all the time the

were in bloom, with very cold east winds. Small fruits are poor everywhere, but in some gardens Gooseberries are a complete failure. In some gardens Black Currants were very good. Here we picked 8 cwt. off about 1 rood. There is a considerable quantity of fruit grown in this district, principally Apples, Plums, and Strawberries. Pears cannot be grown successfully, but new Apple orchards are being formed every year and old ones added to. *J. Lynas, The Gardens, Moyallan, Gilford.*

Kildare.—The fruit crop in this neighbourhood is much under average, and mostly poor in quality, although the early promise was splendid. Continual sharp frost during the whole of April and May, with continual east winds up to the middle of June, has been the cause of our indifferent fruit crop. *Fredk. Bedford, Straffan House, Straffan Station.*

Tyrone.—Fruit crops, although very late in this part, are much more satisfactory than could have been expected, considering the very inclement weather experienced whilst the trees were in blossom. Plums are rather disappointing; having flowered freely and apparently set well, they cast the greater part of their crop when the size of Peas. Apples set very well, the only conspicuous failure being Cox's Orange Pippin, which, strange to say, is usually our most reliable Apple. *Fred. W. Walker, The Gardens, Sion House, Strabane.*

The Apple Crop in South Cork.—Varieties suitable for limestone soil, and good bearing sorts, this year: Mr. Gladstone, gathered from trees first week in August, full crop; Irish Peach, splendid as I write, full crop on standard (all the above are on the Crab stock, with the exception of Stirling Castle and Mr. Gladstone); Gibbon's Russet, full crop, very fine dessert sort (an Irish Apple); Warner's King, a full crop; Domino, a full crop every year, never fails; Red Quarrenden, very fine, I remember this variety for sixty years; Lane's Prince Albert, medium, requires a good thinning out annually of summer growth; Mère de Ménage, laden now with an immense crop; Bramley's Seedling, full crop of fruit, needs the foliage well thinned out annually; Worcester Pearmain, full crop, fine colour; Magnum Bonum, like Domino, full crop, but finer; Ecklinville Seedling, I gathered 6 cwt. of fruit from two standard ten-year-old trees, 1891, and I expect to do the same in 1902; Scarlet Crofton, a full crop, a fine dessert fruit; Stirling Castle, a free bearer every year on the Paradise stock; Sam Young, full crop (this is an Irish Apple, and a fine late dessert sort); The Nannie, very fine and but little known, bright red in colour, a fine dessert sort; Peasgood's Nonsuch, full crop on ten-year-old trees, shall send you some of the fruit later on (the late Mr. Samuel Barlow, of "Auricula" fame, used to grow this to perfection in size); Golden Noble, this variety on limestone soil is wonderful, I send you a branch, of course the fruits are not ripe yet; Oslin Pippin, for a good succession to the Irish Peach as a dessert sort, and a fine bearer every season (I can strongly recommend it, it needs severe thinning of the fruit); Cornish Gilliflower, a splendid Apple on all limestone soils, a lovely dessert variety, is a full crop. *W. Baylor Hartland, Ardcairn, Cork, September* 1, 1902.

CHANNEL ISLANDS.

Jersey. — Cold, wet spring, and particularly the low temperature during the blossoming period, coupled with cutting east winds, destroyed what at one time appeared like a splendid fruit prospect, judging by the grand show of blossom. Pears seemed to have set their blossoms, but they were soon shed, some varieties dropping every one. "Spot" and caterpillars have wrecked the Apple crop, numbers of trees being defoliated; further ill-effects are sure to follow in next year's crop. Red and White Currant-bushes in many districts were leafless for several weeks, and the crop though good cannot ripen satisfactorily. The patience and pockets of growers have been severely taxed. *H. Becker, Caesarsen Nurseries, Jersey.*

Fig. 61.—Bagshot: the young gardeners' bothy. (see p. 171.)

FORESTRY.

THE ENGLISH ARBORICULTURAL SOCIETY'S EXCURSION TO FRANCE.

About fifty members of the above Society left London on Tuesday, August 19, for Folkestone, *en route* for the French town of Compiègne, in the Department of Oise. They were joined at Boulogne by Professor Fisher, from the Engineering College, Cooper's Hill, by whom the arrangements for the excursion had been made, and who acted as general guide and interpreter throughout the tour. Compiègne was reached about eight o'clock the same evening, and proved to be a thriving example of a French provincial town, with about 15,000 inhabitants. Its chief interest to the tourist lies in its proximity to the Palace of Compiègne, with its park and forest; and it was here that the Czar and Czarina of Russia were entertained by the French Government in 1901. To Englishmen it is interesting to learn that King Edward VII., as the Prince of Wales, visited the place about thirty years ago, and when hunting in the forest had a narrow escape from a wounded stag.

On Wednesday morning an early start was made for the town of Villers-Cotteret, about 20 miles distant, and which adjoins the forest of Retz. This forest has an area of about 32,000 acres, and is one of the finest Beech forests in the North of France. Before visiting the forest, the sawmills and factory of M. Carpentier were inspected. These mills consume large quantities of Oak and Beech timber from the neighbouring forests, the largest and best of which is sawn into planks and boards for furniture and piano making, coffin boards, &c., while the small timber is chiefly used for railway sleepers and the manufacture of sabots, which is carried on in the factory. A quantity of ingenious machinery is employed in this work, and no fewer than 1,500 pairs are turned out daily, at a cost of 2½*d.* per pair for wood, and 1*d.* for labour. A novelty in these mills is the employment of sawdust for fuel to drive the whole of the machinery. Adjoining these mills are the works of the North of France Railway Company, at which sleepers are prepared and creosoted. For this purpose Oak is chiefly employed, but large quantities of Beech are also used, as well as Pine from the Landes. Well-creosoted Beech is said to last about thirty years, but requires more creosote than Oak. On the French railways the rails are bolted down to the sleepers without the use of chairs, and for this purpose they are bored and bevelled by machinery.

In the afternoon the forest was inspected under the guidance of M. Cottignies and the inspector. This entailed a walk of about eight miles; but the exertion was amply recompensed by a sight of forest scenery which few districts even in France could exhibit. The first portion consisted of young Beech and Hornbeam, about sixty years of age, with a light sprinkling of Oak. This was entirely the result of natural regeneration, and consisted of tall clean stems about 70 to 80 feet in height, with a mean diameter of about 6 inches in the centre. Its chief interest to English foresters lay in its regularity and freedom from blanks, it being quite as good as a plantation resulting from artificial planting could be.

The system adopted here and practically in all the forest round about is that known as the "Shelter wood compartment system." The rotation is fixed at about 150 years, and at 110 to 120 years a beginning is made with the process of natural regeneration. Preliminary fellings are succeeded by seed fillings when a good crop of nuts occurs, and when once the ground is well stocked with seedlings, the remaining trees are gradually removed in two or three fellings. The whole process occupies from 20 to 30 years. Until the last 50 years Oak and Beech were allowed to grow up together and fight out the question of supremacy for themselves. A few of the best trees which survived the struggle were allowed to stand over when the main crop was filled, and grow on for another rotation. This resulted in the diminution of Ash, and led to the adoption of the present system, by which the Oaks are attended to throughout the thinnings, and the Beech and Hornbean cut away from them as required. The blanks that occur are filled up with Oak and Beech, while the various species which spring up during the regenerating period are cut out before the first twenty years, and the heads of the seedling Oaks also attended to. Regular thinnings are made every ten years between the twentieth and sixtieth years, after which thinnings cease until the time for regeneration again comes round. Before the mature crop is thinned, about 10,000 cubic feet of timber are present per acre, about two-thirds to three-fourths of which are Beech or Hornbeam, and the remainder Oak. The success of the system depends upon the absence of rabbits and the plentiful production of seed; and both conditions are secured in these forests, with results as good as could be desired. Clean stems of an unusual height, and with a girth rarely seen in tall trees in England, are the rule rather than the exception, and on the best soils and situation it is nothing unusual to see Beech and Oak-trees containing 200 cubic feet of clean timber, and with crowns no larger than those we are accustomed to find in trees of half their size in this country. This is undoubtedly the result of a favourable combination of soil and climate, and could not be produced everywhere.

Two relics of a previous crop were noticed at the outset of the walk, an Oak and a Beech. The former was a fine specimen of Quercus sessiliflora, with a clean stem of about 90 feet, and containing between 300 and 400 cubic feet of timber. The Beech, said to be the largest in Europe, had a total height of 150 feet, a girth at breast high of 13 feet 8 inches, and a cubic contents of about 700 cubic feet. *A. C. F.*

(To be continued.)

A HEALTHY APPETITE.—*Lady to Gardener.* "Have you had your dinner, John?" *John.* "Not yet, Mum. I must 'eat the green'ouse fust." *Punch.*

OLD VINES AND HARDY FRUITS AT WROTHAM PARK.

WHEN paying a visit recently to Mr. Markham I could but admire the fine crops of Black Hamburgh Grapes hanging on the old Vines in the large vinery. Planted in 1785, they were in a poor condition when Mr. Markham took charge some four or five years ago, and he at once set to work to improve their condition, removing a considerable portion of the old soil and replacing it with suitable compost. These old Vines show what can be done by careful attention. The old canes were gradually cut away and replaced with young fruiting wood, and now the whole roof is covered, and the Vines are carrying a heavy crop of jet-black bunches, many from 4 lb. to 5 lb. in weight, with berries almost equal in size to that of good Gros Colmar. Mr. Markham is an enthusiast in hardy fruit culture, and he has during his few years at Wrotham Park re-arranged the greater part of the fruit trees on walls in the extensive garden under his charge.

These are now in a flourishing condition, the wall of Morello Cherries alone being worth a journey to see, the fruits being of exceptional size, and the crop all that could be desired. *H.*

STATISTICS OF THE POTATO CROP IN THE CHANNEL ISLANDS —SEASON 1902.

Date of Shipments.	Packages, and in Bulk.	Tons	Average Weekly Price.	Weekly Totals.	COMPARATIVE STATEMENT. Year.	Tons.	Value.
1902.			£ s. d.	£ s. d.			£ s. d.
From April 1 to May 3	3,054	60	26 0 0	1,560 0 0	1884	36,468	375,841 18 0
From May 5 to May 10... ...	11,794	300	19 10 0	5,850 0 0	1885	53,655	319,464 3 4
From May 12 to May 17... ...	30,577	1,135	13 13 0	15,492 15 0	1886	48,524	309,155 6 11
From May 19 to May 24... ...	79,104	3,680	11 1 0	40,664 0 0	1887	64,820	423,888 18 10
From May 26 to May 31... ...	100,460	5,000	7 16 0	39,000 0 0	1888	50,073	242,109 11 8
From June 2 to June 7... ...	172,848	8,880	6 1 4	53,750 13 4	1889	60,988	264,153 15 0
From June 9 to June 14 ...	230,660	12,220	5 4 0	66,664 0 0	1890	52,700	293,681 9 2
From June 16 to June 21 ...	221,925	12,330	4 13 2	57,437 5 0	1891	54,109	487,642 1 8
From June 23 to June 28 ...	149,763	8,320	4 11 0	37,856 0 0	1892	66,810	376,535 15 10
From June 30 to July 5 ...	154,523	9,090	4 19 8	45,298 10 0	1893	66,332	327,366 13 4
From July 7 to July 12... ...	70,975	4,175	4 15 4	19,900 16 8	1894	57,762	462,895 10 5
From July 14 to July 19 ...	13,885	770	4 11 0	3,503 10 0	1895	60,605	359,989 4 6
From July 22 to July 26 ...	1,578	85	4 11 0	386 15 0	1896	54,290	435,192 0 6
					1897	64,583	402,274 9 10
TOTALS...	1,241,126	66,625	.....	£387,364 5 0	1898	53,555	338,269 0 0
					1899	56,227	330,421 0 0
					1900	65,040	445,872 0 10
					1901	54,012	320,901 15 0
					1902	66,625	387,364 5 0

The Week's Work.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Latest Peach-house.—The fruits in unheated houses are this season very late in ripening. If sunny weather be vouchsafed, the warmth of the Peach-house may be allowed to reach 85° or 90°, with a considerable amount of ventilation given before noon. In order to obtain high colour, expose the fruit to the light, and as it ripens let the air be kept drier, and allow some of the ventilators to remain constantly open. Tiffany or fine netting should be suspended under the trees in order to catch any fruits that may drop. If the border has been properly attended to in the matter of moisture, no more will be needed before the crops of fruit are consumed. The fruits being consumed, remove the shoots which have borne fruit, and carry out generally the instructions previously given in regard to the Peach. The wood being unusually immature this year in unheated houses, a high degree of sun-heat should be maintained so as to get the wood ripened.

Orchard-house.—That which has been advised as the treatment of the Peach and Nectarine in unheated houses, applies to the orchard-house. The degree of maturity of the fruits of the best dessert Plums and Pears being behind that of late ordinary years, the house should be closed in the afternoon whilst the sun heat is considerable. Pears may still be afforded manure-water. Let all shoots not required be removed, and tie out the remaining ones, so that they may get thoroughly ripened, and keep the foliage healthy and free from insects.

Peach-houses.—When the crop of fruit is gathered, if the borders require it, afford a thorough application of water, and if the soil be of a light nature, manure-water will be beneficial; and several times a week wash the trees with clean water. When the wood is properly matured afford as much air as possible night and day.

Early Forced Peach-trees.—Any trees in these houses which have this season grown too strongly to be fruitful should have the roots lifted, and strong and deeply-descending ones slightly shortened, wrapping them all in damp straw or mats whilst the border is being put into good order. Put the drainage about 2½ feet below the surface, and incorporate heavy loam with the staple, mixing coarse lime-rubble through it if very retentive, and bone-meal and Thomson's Vine Manure if the loam obtainable is too light. The soil should be made firm, and brought well up to the surface before spreading out the roots. Let this be done with care, and not too thickly, and when the work is finished, they should not be deeper than 4 inches under the surface. Finish off with a mulch of short manure.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

French Beans.—Let a good sowing of French Beans be made forthwith in Melon or Cucumber-pits, and if the pits are heated some heat may be employed in cold weather and on frosty nights from October onwards. The soil left in the pits will be sufficiently good for Beans. If the pits were filled with stable-dung and tree-leaves in the spring, the soil should be merely levelled, and if of insufficient depth for the Beans more soil must be added. If the Melons were grown on a shallow bed of soil without a hot-bed, afford a liberal dressing of old Mushroom-bed dung. The seed may be sown in drills 18 inches apart and 2 inches deep, and in single lines at 3 inches apart in the lines. The pits should be kept close, and shaded from hot sun till the plants are above the soil, when air should be freely afforded in the warmer hours of the day.

Tomatos.—Plants set out against warm walls and fences are only the ones likely to afford good crops, and these being late should be covered with spare cold frame lights, securing these against the wind with wire strained over the top of the lights or with staples driven in the walls to which the handles should be fastened. Top the stems of the plants and remove side-shoots, leaving however sufficient foliage to enable the plants to properly develop fruits.

Cabbages.—A Cabbage crop always does well after Onions, and the ground having been well prepared for Onions it will only require to be hoed over and roughly raked before setting out the plants. The firm ground being conducive to sturdy growth reduces the liability of the earliest planting of Cabbage getting too forward to stand the winter well in the event of a mild autumn occurring. The Onion quarter is, however, in most gardens, too small for the whole of the Cabbage crop, and the land occupied by second early or midseason Potatos should be got in readiness, lifting the latter forthwith. It may be necessary to bastard trench this land if it be not in good heart, skimming the crust off and burying it in the bottoms of the trenches, and affording a good dressing of well rotted dung on the top of the bottom spit. The ground should then be left to settle as long as possible, but before being planted it should be made firm by trampling it evenly and regularly.

Salads.—Continue to plant Lettuce and Endive on warm borders for the purpose of planting under protection at a later part of the season in orchard-houses, or pits or frames late in the autumn, or covering with skeleton frames where it grew. Scarlet and white forcing Radishes will succeed at this date if sown on a rich border. Mustard and Cress is now more satisfactory if sown in boxes in frames, shading them from hot sun.

THE ORCHID HOUSES.

By W. P. Bound, Gardener to J. Colman, Esq., Gatton Park, Reigate.

Epiphronitis Veitchii ×.—Plants that have continued to flower since early spring should now be denuded of all flowers and buds to encourage growth to be made. Although this charming Orchid grows during the greater part of the year, it is at the present season that the best growths are made, and such that will produce fine heads of flower in early spring. If the compost has become sour from repeated waterings, let the surface material be carefully worked out, and then afford a top-dressing compost of two-thirds clean, chopped sphagnum, and one-third fibre-peat. In cases where the growths are crowded together, some of these that have flowered should be removed; and if it is desirable to increase the stock, the growths that have already produced aërial roots should be the ones selected for removal. Place several of these severed pieces together, and pot them in the above compost, making the pots one-half full of crocks placed edgeways. Secure the growths upon the older plants to neat stakes, and afford the plants a very light position, where they can be freely syringed. Shading need only be used during the hottest part of the day.

Lælia Lindleyana.—This supposed natural hybrid between Brassavola tuberculata and Cattleya intermedia, known generally as Lindleyana, is now growing freely. If it is necessary to repot or resurface the plants, use for this purpose a compost of equal parts fibrous peat and chopped sphagnum. The pans should be made one-half full of clean crocks, and potting should be done firmly. Put them at the warmer end of the intermediate-house, where sunshine will reach them. Do not afford a large amount of water at any season, and when the growth is completed and the flowering season over, only sufficient is needed to keep the pseudo-bulbs plump.

Lælia flava.—When the new pseudo-bulbs commence to make roots from the base, any necessary potting or resurfacing may be done, using a compost of two-thirds fibrous peat and one-third chopped sphagnum. Either pots or pans may be used. Let them be well drained, and in potting make the compost moderately firm, keeping the base of the growth on a level with the rim. Afford water with much care for a time, but when the roots are really active they will require it freely during favourable weather. Put the plants in the intermediate-house in strong light and a moderate amount of sunshine.

Spathoglottis.—S. aurea and S. Lobbii are now throwing up their flower-spikes, and should be afforded abundance of water. The summer-flowering varieties, such as S. Kimballiana and S. plicata, have their growths sufficiently advanced to allow of any necessary repotting, &c., being done. The compost should consist of equal parts of good fibrous peat, loam, and leaf-soil, which should be mixed well together, and a sprinkling of small crocks added. Choose pans rather than pots, and provide good drainage, for copious supplies of water will be necessary when growth is vigorous. Place them in the warmest and shadiest end of the stove Orchid-house, and during the growing season syringe them freely on all favourable days.

PLANTS UNDER GLASS.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Ferns.—Where these are grown in quantity, and more especially those on rockeries, where the fronds often overhang each other thickly, a general examination should take place now and then, and all the older fronds which can be spared removed. By this means the insects with which some Ferns are especially liable to be infested, will be got rid of; and in the case of Adiantums, the removal of fronds will permit the air to circulate more freely between the plants, and prevent damping off in foggy weather. Thrips do much damage; and it is almost an impossibility to eradicate them entirely from Lomarias and Ferns of similar growth, as insecticides of sufficient strength to kill the pests cannot be employed; and it is only by frequently sponging the fronds with water, and the removal occasionally of the aged fronds that this pest can be kept in check.

Salvia splendens.—When colour appears in the bracts, remove the plants from outside to the greenhouse, affording them full sunlight and air; and to this end stage them thinly, for anything which tends to "draw" the growths and spikes will lessen the duration and pale the colour of the flowers. The more slowly the flower-spikes are brought on the better, and they are more serviceable late than early. A great difference is to be seen in plants raised from cuttings and from seed, and the advantages seem to lie entirely with the latter, as cutting-raised plants perpetually run to flower, and the flower-spikes are always of small size as compared with seedlings through the frequent stopping that is necessary.

Winter-Flowering zonal Pelargoniums.—No further stopping of the shoots should be practised, and only the flower-trusses may be removed. From now onward it is necessary that the wood should be matured, consequently the plants must not be exposed to night dews, but they should occupy cold frames facing south, and stand close to the glass. The frames should be freely ventilated, and in the course of a week or two the plants may be removed to the house in which they are to flower, and where they should be afforded a buoyant atmosphere, and a night temperature of 55° to 60°.

Show Pelargoniums.—When the new shoots have grown to about 1 inch in length, shake the plants out of the soil, greatly reducing the size of the root-masses, and repot in pots at least two sizes smaller than those they have been occupying. This applies to plants of mature age, and not necessarily to young stock that is being grown on, as these may be treated more liberally in the matter of root space, though a certain amount of cramping at the root is good for these likewise up to December. Keep the plants in a light, cool frame, and look out sharply for aphides. In potting, make use of a sandy loam of good quality, and a small quantity of well-decayed horse droppings, but avoid leaf-mould.

Kalosanthes.—Old plants which have flowered may be cut back into shape, and stood outdoors in the full sunshine, where they may be left till frosts appear imminent, this sort of exposure having a good effect on the production of flowers next year. Cuttings about 3 inches in length should now be inserted in threes in 3-inch pots in sandy loam, and be placed on a shelf in the greenhouse, and for a time scarcely any water afforded. There are several improved varieties in addition to the old K. coccinea.

Solanums.—These and all other tender plants which have been grown in the open ground should be cut round with a spade, and lifted a few days later, potted, and stood in a cold frame, keeping them rather close and shaded till re-established.

THE HARDY FRUIT GARDEN.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, East Budleigh, Devonshire.

Gathering Fruit.—The month of September is usually a busy one for the gardener, for many varieties of fruit have to be gathered. Peach and Nectarine fruits on walls have within the past ten days greatly increased in size and colour. These should be examined every other day, gently handling the fruit with the fingers placed at the base of the same, and only removing those that will part freely from the tree. Place these in a cool, airy fruit-room, where they will keep fresh for several days. If such varieties as Hale's Early, Early Alfred, Rivers' Early York, and Early Grosse Mignonne have been planted to succeed Alexander and Amsden June, and there are plenty of varieties to ripen later, a supply of Peaches should be forthcoming for the next five or six weeks. Among Nectarines, Early Rivers stands pre-eminent for earliness and colour, and is a most luscious fruit. Lord Napier, Elruge, Stanwick Elruge, Pitmaston, and Rivers' Orange, come in about the order named. In the warmer counties, Williams' Bon Chrétien Pears will be fit for gathering about the middle of the month, and these are best gathered several days before they will be required for table. Clapp's Favourite is a good market fruit, but on some soils has poor flavour. Apples, such as Lady Sudeley (of grand colour this year), Red Quarrenden, Worcester Pearmain, Lord Grosvenor, Lord Suffield, Domino, and Keswick Cod'in, should be the first to be gathered, the first three being suitable for dessert. Fruits placed in the fruit-room must be examined every few days at this time of the year, and if not already done, let this building be thoroughly cleansed by giving the walls and ceiling a coat of whitewash, after being swept down with a soft brush. Rub over the woodwork and staging with a damp cloth, so that all may be clean and ready by the time the general ingathering of Apples and Pears takes place next month.

General Work.—Examine Morello Cherries on north walls each week, as the showers are causing a good many of the fruits to crack, when they soon decay, even if the wasps do not clear them off. These should be gathered for making tarts and jam. Fruits for bottling ought not to be dead ripe, and in the majority of instances are quite ready for this purpose, taking care that the fruits are not bruised in gathering. This should be done with a knife or pair of scissors, and the fruits laid singly on shallow trays or boxes, choosing a dry day for the work. Early varieties of the Peach, from which the crops have been cleared, should be slightly pruned by removing the shoots which have borne fruits, if not required for extension of the tree, also any ill-placed growths that are likely to interfere with the ripening of this year's shoots.

APPOINTMENTS FOR THE ENSUING WEEK.

SUNDAY, SEPT. 7 — Chambre Syndicale des Horticulteurs Belges, Ghent, Meet.

WEDNESDAY, SEPT. 10 — Royal Caledonian Horticultural Society's Autumn Show at Edinburgh (2 days).
Hull and District Horticultural Association's Show (2 days)
Derbyshire Agr. and Hort. Soc Exhibition at Derby (2 days).

SALES FOR THE WEEK.

MONDAY to FRIDAY, SEPTEMBER 8 to 12—
Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 11.
WEDNESDAY, SEPTEMBER 10—
Lilium Harrisii, Narcissus, Double and Single Pæonies, and Palm Seeds, by Protheroe & Morris, at 67 and 68, Cheapside, at 5.
FRIDAY, SEPTEMBER 12—
Orchids, by Protheroe & Morris, at 12.30.
(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —58 7°.

ACTUAL TEMPERATURES:—
LONDON.—*September* 3 (6 P.M.): Max. 72°; Min. 60°.
September 3.—Fine, windy.
PROVINCES.—*September* 3 (6 P.M.): Max. 65°, East England; Min. 59°, West England.

Variation in the Dahlia and other plants.

THE study of variation, of the causes as well as of the phenomena, should have special interest for gardeners. Variation, as a result of cross-breeding, either in the form of bud-sports or seed-sports, seems intelligible, but variation from pure species is less easy to understand. The Sweet Pea is a species that, so far as we know, has not been inter-crossed with any other species, and being an annual, produces no bud-sports; and yet by selection have been obtained flowers of varied colours, flowers with notched standards, flowers with entire standards, flowers with flat and others with incurved or hooded petals, and so on. These are, after all, minor variations. Of more importance, from our point of view, is the dwarf race now known under the name of "Cupids." Here the chief difference is in stature; but so far as we have seen, there is the further difference that the leaflets of the Cupid section are more succulent, somewhat less hairy, and proportionately broader in relation to their length than is the case in the ordinary form.

China Asters (Callistephus) are also annuals which have not been crossed, but yet the variation in the form and colour of their florets is very great indeed, whilst the foliage is mostly uniform.

The common Ivy, again, is a pure species, yet the variation in the leaves is much greater than that between many so-called species. Ivy is a perennial, and many sports or bud-variations have been obtained from it, but so far as we know, no true "sport" or bud variation has been obtained from any annual plant.

Professor DE VRIES has observed such wide variations from uncrossed seed (so far as species are concerned) of Œnothera Lamarckiana, accompanied by constancy of characters, that he goes the length of considering these seedling variations as distinct species. No doubt the differences are greater than between many acknowledged species, and it is quite impossible to say where a variety ends and a species begins, so that Professor DE VRIES has as much right to look on his foundlings as species, as others have to consider them as seedling variations.

Of variation arising from intercrossing the show organised by the National Dahlia Society, in conjunction with the Royal Horticultural Society, has this week afforded ample illustration. The large Drill Hall of the London Scottish Volunteers was completely full of many-hued Dahlias, the ordinary Committees having to betake themselves for this occasion to an upper chamber. The Dahlias in vases were magnificent, and for the most part artistically and beautifully arranged; but of those shown in the hideous boxes which the florists still deem essential, or in the conventional shields and triangles, nothing too severe can be said as regards their arrangement. The loveliest flowers would, and do, suffer from such tasteless methods of grouping. But it is of the Dahlias as illustrating variation rather than of their mode of arrangement that we wish now to speak.

There were a few single Dahlias, unfortunately less in favour than formerly. These, of course, are the nearest in point of form to the natural type, with their brightly-coloured ray-florets and their yellow disc-florets. The Anemone-flowered varieties, not much known yet, owe their appearance to an enlargement of the disc-florets, but without material change of form, just as happens in the case of the corresponding class in Chrysanthemums and Pyrethrums. To this group belong as outliers the new "Collerette" Dahlias, which originated a few years since in France, and of which illustrations were exhibited on this occasion by Messrs. CANNELL. These are apparently the forerunners of a new type. They are not likely to be admired at present, but for all that we believe they have a great future before them.

The Cactus Dahlias, first figured in these columns, are the descendants from D. Juarezii, and are the favourites of the day. Their appearance is due solely to the replacement of the disc-florets by florets like the ray-florets, but elongated, and with the margins rolled back. The "quills" are in the true Cactus Dahlias spreading, but in others they fold inwards, as in the variety named Gabriel, the florets of which remind us of a Medusa or Sea Anemone. Grand Duke Alexis has long, straight florets, markedly "convolute," or rolled round as one might roll a sheet of paper; while Germania, yet another and handsome type, has the florets all quite flat, and very symmetrically arranged.

Lastly, there are the big show and fancy Dahlias, with their diminutive representatives, the Pompons. Here, too, the disc florets are replaced by quilled florets. The form of the flowers in this section is devoid of grace and elegance, but the range and purity of colour are astonishing, and in this particular they outvie all others.

Lastly, as illustrations of variation, we may note the differences in the foliage, in the season of blooming, which is anticipated in some cases, protracted in others so long as frost permits; in the length of the flower-stalk—short in some cases, long in others, and allowing the flower-heads to show up well above the leaves, a matter of great consequence where Dahlias are grown as decorative objects in gardens. At present Dahlias succumb to a very slight frost; but it is quite within the range of possibility that, availing themselves once more of the inherent powers of variation possessed by the plants, a hardy race may be gradually developed. In any case, it is worth trying for, and those who have done so much for us in the past may be relied on not to relax their efforts in the future.

ROYAL HORTICULTURAL SOCIETY.—The Royal Horticultural Society's great show of British-grown fruit takes place at the Crystal Palace on Thursday, September 18, and the two following days. Copies of the prize schedule, with entry form, can be obtained on application to the Secretary, Royal Horticultural Society, 117, Victoria Street, Westminster. Intending exhibitors must give notice in writing not later than Thursday, September 11, of the class or classes in which they propose to exhibit, and the amount of space required. On each day of the show, after 10 A.M., Fellows of the Society, on showing their tickets at the turnstile, will be admitted to the Palace free.

THE GENUS ASTILBE.—We are requested to publish the following letter:—"A paragraph in the current number of the *Gardeners' Chronicle*, p. 156, is so worded as to convey a false impression to the reader who does not trouble to test the statements there given. After saying that sundry corrections are needed in the *Index Kewensis*, a list of nine species of Astilbe is given, from which it would seem that on these points the work in question is at fault. The fact is that four of these names were published after the end of the year 1885, the limit of the work; two of these are published in the Supplement (1886-95), and the remaining two will appear in the second supplement; the five which remain are all given correctly in the *Index Kewensis* itself, namely, Astilbe Aruncus, A. barbata, A. odontophylla, A. podophylla, and A. polyandra, Baillon. Errors and omissions are not absent from the work, and a list of them is kept for publication at the end of Supplement, but the paragraph in question does not add to them. B. DAYDON JACKSON."

GLADIOLI.—From Messrs. KELWAY & Co., of Langport, Somersetshire, we have received a fine bunch of these noble flowers. Amongst the most remarkable were Sir Charles Russell, orange-scarlet flaked with stripes of deeper hue; Countess of Annesley, rose-pink, flushed and flaked with a deeper tint; Countess Crewe, creamy-white flushed with pink; Eugene Sandow, scarlet with a white blotch on the recurved petal; Peter Drummond, a very fine flower of a rich crimson self colour. For decorative purposes no finer flowers can be used to produce effect whether of colour or form. When the proper foliage is not at hand, leaves of the Japanese Bamboo (Metake) offer an efficient substitute.

CULTIVATION OF SUNFLOWERS.—The first year of the twentieth century closed with a curious sale, at the Baltic sales-room, of a cargo of Sunflower seeds, which changed hands at £11 5s. per ton. Though a small trade has been done in Sunflower seeds for nearly 200 years, this transaction was the first in which a whole cargo—300 tons sent from Odessa—was dealt with. In Russia, where the cultivation of the Sunflower and the manufacture of oil from its seed is conducted on a large scale, the variety grandiflora is the one grown. The species rises in a slender stalk of 5 feet high, producing one monster head, the average yield being as much as 50 bushels of seed to the acre. So rich is it in oil, that that quantity of seed will yield 50 gallons of oil; while the refuse of the seed, after this quan-

View in the Garden, Bagshot Park, Surrey, the Seat of H.R.H. the Duke of Connaught

trip of oil has been expressed, weighs 1,500 lb. when made into cattle cakes. Few people in England who grow the Sunflower for ornament have any idea of its usefulness. It is among neglected crops in which there is money. Besides the seed, every other portion of the plant can be utilised. The leaves furnish an excellent fodder; while in Russia the stalks are prized as fuel, and their ashes, which contain 10 per cent. of potash, are readily sold to the soap-makers. Naturally, in Russia the chief virtue of the Sunflower lies in the oil contained in its seed. The oil is of a clear, pale yellow colour, almost inodorous, and of an agreeable mild taste, so that it is in great request as a table article. Why Sunflowers are not cultivated on an extensive scale in England, it is difficult to say. Poultry and cattle like the seed, either in its natural state or crushed and made into cakes. No plant produces such fine honey and wax; when the flower is in bloom, the bees abound in it. *Journal of the Department of Agriculture of Western Australia.*

THE METRIC SYSTEM.—We are happy to think that the irrational system of weights and measures which has encumbered us so long is on the high-road towards abolition. A decimally proportional system, such as our Continental neighbours have almost universally adopted without material difficulty, should certainly not be beyond our capacity. We extract the following from a letter of Mr. E. Jones Nash in a recent issue of the *Times*: "It is a great mistake to imagine that the whole list of Greek and Latin names for the metric multiples and sub-multiples must be learned and used. In fact, it was stated in evidence before the Select Committee of 1895, that in Germany 'there is really no teaching of the metric system at all . . . there are no tables and no possibility of having tables, because it is the same system as the system of counting.' For the ordinary purposes of domestic trade, it will be sufficient to understand the value of the three principal units, the meter, the litre, and the kilo, and there is no reason why halves, quarters, and other fractions of these units should not be used where it is convenient to do so. The following statement contains all that is necessary to be learned to enable the change to the metric system to be made:—The meter is the standard measure of length; it is divided into 100 centimeters, or 1,000 millimeters (one meter = 39⅜ in.). The meter can be squared for measures of surface, or cubed for measures of bulk or volume, just as yards or feet can be squared or cubed. One cubic meter of cold water weighs 1,000 kilos, or one ton. The litre is the standard measure of fluids, grain, &c.; it can be divided into 10 decilitres, or 100 centilitres (one litre = 1¾ pints). One litre of cold water weighs one kilo. The kilo is the standard measure of weight; it is usually divided into 1,000 grams (half a kilo = 1·1 or 1⅛ pounds). The evidence which was laid before the Select Committee of 1895 by Mr. ALEXANDER SIEMENS, as to the facility of the adoption of the metric system by the people, should encourage those who dread the difficulties of securing the general adoption of the metric system. He said:—'Knowing both nations England and Germany, I imagine that the English people, being a more practical nation, would see the advantages much quicker, and would adopt the metric system much more quickly than was done in Germany even.' In reply to a question as to what inconvenience was experienced in Germany, and whether it was of lasting character, he replied, 'No, not at all. It was all a matter of about a fortnight or three weeks, then the people were accustomed to it, and did not ask any more for the old measures.' The fact that the Colonial Premiers at their recent conference passed a resolution in favour of the adoption of the metric weights and measures throughout the British Empire, must be taken as heralding this reform; and it may be interesting to your readers to know that there is a strong probability that the United States Congress, at their next session, will pass a Bill making the use of the metric weights and measures compulsory in all the State departments at Washington, other than that which deals with land survey."

THE BOARD OF AGRICULTURE AND ITS WORK.—The Board of Agriculture has just issued its annual report of proceedings under the Sale of Food and Drugs Act, 1875 to 1899; the Merchandise Marks Act, 1887 to 1894; the Fertilisers and Feeding Stuffs Act, 1893; and the Board of Agriculture Act, 1889 (sect. 2, subsect. 3) for the year 1901. The publishers are Messrs. EYRE & SPOTTISWOODE, East Harding Street, E.C., price 2*d*. It is almost unnecessary to state that the work done by this valuable Government department is of high quality, and is surely being appreciated by all whom it concerns, evidence in point being furnished by the number of applications for assistance coming in from agriculturists and others all over the country; and what with the Board and the Press at its service, the farming industry is well provided for in this respect. The little work is well worth perusal.

ACREAGE OF HOPS.—Preliminary Statement compiled from the Returns collected on June 4, 1902, showing the acreage under Hops in each County of England in which Hops were grown, with a comparative statement for the years 1901 and 1900.

COUNTIES.	1902.	1901.	1900.
	Acres.	*Acres.*	*Acres.*
Gloucester	46	46	47
Hants	2,093	2,123	2,231
Hereford	6,908	7,497	7,287
Kent	29,649	31,243	31,514
Salop	125	144	128
Suffolk	4	4	4
Surrey	989	1,223	1,200
Sussex	4,541	4,900	4,823
Worcester	3,779	4,029	3,924
Total	48,024	51,127	51,208

Board of Agriculture, 3, St. James's Square, S.W., August 28, 1902.

THE TORQUAY DISTRICT GARDENERS' ASSOCIATION, owing to lack of funds, has been compelled to cancel the schedule for their annual Chrysanthemum show, fixed for Nov. 5, with the exception of the special prizes, Classes 29—33. It is, however, intended to hold a show on the same day for honorary exhibits, and friends are asked to make the event as successful as possible.

IRELAND.—Mr. BURBIDGE sends us the following note:—"I have just had a trip through Cork and Kerry, where the climate is wonderful and vegetation charming. Viscount BARRYMORE'S place at Fota, near Queenstown, is like an open-air conservatory—the temperate-house at Kew in the open air! Valencia Island has an even more genial climate, jungles of Fuchsias, Bamboos, Escallonias, Blue Gums, and Myrtles. Ivy-leaf Pelargonia are hardy on walls there; and Embothrium coccineum, Eugenia apiculata, Drimys Winteri, 20 to 30 feet high, and in perfect health and beauty. Cork and Kerry form one enormous and beautiful rock garden, Ericas and Saxifraga umbrosa vieing with each other in sun and shade. In the marshy meadows and bogs Osmunda grows by the thousand, sometimes having trunks like a Tree-Fern, 2 feet high, and fronds 6 to 8 feet in length. Every dripping rock face or wet bank is starred with the greater Butterwort (Pinguicula grandiflora), and the tufts of sphagnum are enriched by blood-coloured rosettes of two or three kinds of Sundews or Droseras. Near rocky streams in shady woods the tree-trunks and stones are draped with the "Wedding Fern" (Hymenophyllum tunbridgense), in masses as big as a sheep's fleece. Most beautiful of all wild flowers are the white Water-Lilies (Nymphæa alba) in the bog-pools, lakes, and tarns. There are miles of them along the reedy margins of the lakes near Inchigeelagh, patches here and there an acre or more in extent, and glistening white flowers by the hundred-thousand and more."

AGRICULTURAL EXPERIMENTS AT ST. ANDREWS.—The members of the St. Andrews and East of Fife Farmers' Club paid a visit recently to Dr. J. H. WILSON'S experimental plots at Greenside Nursery. The plots were reduced to a minimum size, the object being not to test the results of growing certain crops in large bulk, but to carry out with a few plants experiments which demand constant and close inspection. The plots include a very complete set of agricultural grasses and clovers, and also the less commonly cultivated plants, such as Lucerne, Sainfoin, Serradilla, Bokhara Clover, Comfrey, Chicory, Burnet, Buckwheat, Flax, &c. Attention is given to plant parasites and diseases. An interesting root parasite of clover, the Broomrape, was in flower. This was established by sowing the seed of the clover and the parasite together. The inoculation of Rye with Ergot formed another very interesting experiment. Rust, smut, mildew, finger-and-toe, and sprain, receive a share of study. Numerous new garden hybrids of value, including fruits such as Brambles, were seen in the nursery. In the plots was found a very remarkable series of vegetables derived from crosses between Brussels Sprouts and Broccoli, Savoy and Brussels Sprouts, Curled Kale and Broccoli, &c. The object in crossing these is twofold—to gain insight as to the effect of deliberate inter-crossing of the varieties of the Cabbage family in the matter of reversion to the old stock, and, if possible, to secure new races of vegetables. The new plants are extremely vigorous, and present a bewildering variety of shape and tint. A remarkable cross between Curled Kale and Charlock was in flower. It partook most of the latter parent, but was much taller. Crossed Swede and yellow Turnips, and crosses between these were in abundance, and are regarded as very promising. A large number of crossed Potatos was only sown in the middle of March last, but the plants are expected to bear a full crop of tubers this season. Many were in flower, and the stems of many were 3 feet high. It is instructive to find a great variety in colour of leaf, flower, and tuber in seedlings from one and the same fruit. The most remarkable objects in the plots, however, were probably Dr. WILSON'S new hybrid Oats. They were the result of six distinct crosses, including White Canadian, English Potato, Waverley, &c. All present most surprising vigour. The tallest, Goldfinder crossed with English Potato Oat, reached the height of 7 ft. 8 ins. The heads of the hybrids were commonly enough 18 inches long, and in one case the number of grain-bearing stems produced by one plant was twenty.

CATTLEYA MENDELII.—Mr. J. BRYANT, Sandown, Isle of Wight, has sent us a photograph of a plant of Cattleya Mendelii which he has grown from one old bulb and one new

bulb, the latter no larger than the little finger, and received by him nine years ago. When photographed, the plant was bearing twenty-four flowers fully open, and sixteen more to open. Three had been cut previously, so that altogether the plant has produced forty-three flowers in one season. It is growing in an ordinary plant stove, and is now in a 12-inch pot.

AGAVE AMERICANA.—Mr. MOORMAN, Superintendent of the Victoria Park, London, has flowered three plants of the green-leaved type in two years. One of these fruited freely, and seedlings have been raised as easily as grass.

CROYDON HORTICULTURAL IMPROVEMENT SOCIETY.—On Wednesday, the 27th ult., the members of this Society visited Paddockhurst, the seat of Sir WEETMAN PEARSON, where they were received by Mr. WADDS the gardener. In the afternoon the party proceeded to Worth Park, where they were conducted round the grounds by Mr. ALLEN, gardener to Mrs. MONTEFIORE.

TOO MANY PAPERS.—A Belgian agriculturist is reported lately to have expressed the desire that all horticultural journals should forthwith cease and be determined, and that their places should be taken by one central organ representing a federation of the horticultural societies of the kingdom. We expect the orator will not see the realisation of his desire. He is not obliged to read all the papers.

THE SWISS VINTAGE OF 1902.—It seems that the Grape crop for the present season in Switzerland will be a very poor one, owing to disease. In the Canton de Vaud, and elsewhere, the prospect of profit is very small, and old *vignerons* begin to be afraid that a wholesale digging up and burning of the old stocks, followed by soil clearing and the planting of new stocks, will be absolutely necessary. The correspondent of a daily contemporary has traversed the affected districts, and the above is his record. The practice of spraying with sulphate of copper would appear to be quite ineffectual in the case of old vineyards, and a few days since the ripening of fruit was proceeding very slowly—no start whatever could be reported in several of the fields.

THE PARKS OF BOSTON, U.S.A. — The twenty-seventh annual report of the Board of Commissioners of the city of Boston Department of Parks, has been forwarded to us by Mr. J. A. PETTIGREW, the Superintendent of the Department. The report, to the end of last January, speaks of much work done, and of more that is proposed. The open spaces under consideration include not merely what we understand by parks, but playgrounds and gymnasiums furnished for the recreation of citizens of all ages. It is proposed to use the refectory building at Franklin Park in part as a reading-room and library, to contain chiefly books relating to natural history for the use and enjoyment of the general public, as well as for students of landscape gardening, botany, ornithology, and similar subjects. A representation of the animal and vegetable life of our New England States, if it can be secured, would add to the interest and value of the library.

PUBLICATIONS RECEIVED.—*Vegetables and Flowers from Seeds in Tropical, Semi-tropical, and Temperate Climates*, by Sutton & Sons, Reading.—*Evesham and the Neighbourhood*. Evesham: W. & H. Smith.—*Experimental Farms, Canada* (Ottawa).—*Orchard and Bush fruit Pests, and how to combat them*. By Cecil Warburton, M.A., F.L.S., with twelve illustrations (London, John Murray, Albermarle Street). A useful handbook, mentioning that the same remedy is not efficacious for every disease, and describing the most common insect pests and the (accordingly) various ways by which their attacks may be coped with.—From the County Councils of Cumberland, Durham, and Northumberland Technical Education, *Experiments with Crops and Stock, conducted by the Agricultural Department of the Durham College of Science, Newcastle-upon-Tyne, during season* 1901. Tenth Annual Report, compiled by T. H. Middleton. The results of the experiments here so carefully given, are useful in themselves, and for comparing with similar reports from other stations. — From the Imperial Department of Agriculture for the West Indies: Pamphlet Series, No. 15, *Plain Talk to Small Indies: Pamphlet Series, No. 15, Plain Talk to Small Owners at Montserrat*, by his Honour F. H. Watkins, and, No. 16, *Hints on Onion Cultivation at Montserrat*, by the same author, the Commissioner of Montserrat.—*The Agricultural Gazette of New South Wales*, June. This includes notes on: Useful Australian Plants (continued): Spurious Tonga Beans, Horticultural Teaching, Millerand in Grapes, and various articles on live stock, orchards, &c. We note that the Department of Agriculture, Sydney, undertakes to supply, at low rates, rootings and cuttings of Phylloxera-resistant Vine-stocks, as well as Folle Blanche and (varieties) of Chasselas from France, for wine-making.—*Agricultural Bulletin of the Straits and Federated Malay States*, June, dealing with: Rubber, by R. Derry; the Production and Consumption of Coffee, and various other similar subjects.—*The Journal of the Department of Agriculture of Victoria*, June. Contents: Pastures and Fodders of Northern Victoria, H. Pye; Manure Experiments, 1901—2, Criticism of Results, F. J. Howell; Fodder for the Dairy Herd, T. Cherry; Vine Pruning, J. Perrand (translated); Peach and Plum Rust, D. McAlpine; Treatment of Black Spot of the Apple and Pear, D. McAlpine, &c.—From the Imperial Department of Agriculture for the West Indies: *Reports on the Botanic Station, Agricultural School and Land Settlement Scheme, St. Vincent*, 1901. Very satisfactory as regards all branches of the work.—From the above-named department: *Report on the Experiment Stations at Montserrat*, 1900 to 1901. "The report is, on the whole, of a favourable character, notwithstanding the severe drought of 1901."—Also from the above-named department: *Reports on the Botanic Station and Agricultural School, Dominica*, 1900 to 1901. The seasons appear to have been remarkably dry, but considerable work was done and sundry improvements were effected. — *Journal d'Agriculture Tropicale*, July 31. Full of notes on the cultivation of Bananas, Rice for brewing, Caoutchouc, &c.—*Journal of the Department of Agriculture of Western Australia*, June. Among other appropriate communications we note a paper by Dr. C. F. Langworthy, on The Value of Potatos as Food.—From *Agricultural Gazette of New South Wales*, February. Miscellaneous Publication, No. 551, *The Cork Oak*, a useful tree for N. S. W., by J. H. Maiden; and from the same course, Publication No. 553, *Records of the Sydney Botanic Garden*, also by J. H. Maiden. This latter contains an interesting account of the early days of the Gardens, and letters, dating from 1828, that give a good idea of the plants then cultivated, and of the difficulties of the former Superintendents in starting a valuable work that is now so wonderfully enlarged in scope and consequent value. — From the Oxfordshire County Council, 1901 and 1902. Appendix: *Mr. Heaton's Report on Rural Agricultural Instruction*.—Botanical Department, Trinidad: *Bulletin of Miscellaneous Information*, No. 34, July. Includes notes on Fungi, Cane Seedlings, Newly Imported Mango Trees, &c.—*Bulletin of the Botanical Department, Jamaica*, July. Contents: Cassava, Luffas at Hope Gardens, a Banana Disease, Lace Bark, Arbor Day, Liberian Coffee, Ferns of Jamaica.—*West Indian Bulletin*, Vol. III., No. 2. Contents: Agricultural Conference, 1902 (continued), Teaching of Agriculture, Report of Educational Section, Exportation of Fruit, Banana Industry, Barbados Aloes, &c.

ABOUT THE MADONNA LILY.

WHERE is the white, old-world, Lily really wild? In Italy? In any place in Europe, or only in Asia or the East? the East that is still so mysterious, and so insufficiently understood. Boissier tells us that L. candidum is wild in several places "in silvaticis rupestribus," but he does not say if he has really found it wild. I never saw it wild in Italy; nevertheless one botanist tells us that it is found in places really wild. If it has been found once on old walls in the country, it seems to me certain that it has always occurred there occasionally. All the garden forms of the white Lily I have ever cultivated differ one from another. I had in cultivation African specimens from Algiers and Tunis; Asiatic from Beyrouth, Jerusalem, and other localities; also many from Italy, as from Palermo, Naples, Rome, Florence, Ravenna, &c., and I found that there are always differences according to locality. The finest and largest I saw at Florence, the largest flowers with very large perianths at Palermo. I found scarcely a fruit or capsule amongst half a million subjects in my collection, grown not long ago. During my last journey, lasting for some months in Calabria, precisely in the neighbourhood of Palim and Scilla, in a rich valley at the foot of the Aspromonte, I found in several places some white Lilies, not wild, but in a partly wild state, which roused my keenest attention, as I am sure that I found the primitive, or one of the primitive types of white Lilies. It is possible that Lilium candidum was really wild in the Aspromonte and district, but that it was preserved in the convent gardens of the dark or middle ages. It is also possible that the religious orders of the Italian Church were of Eastern origin, and that they brought this wild Lily to Italy. Here is a short description of this form: — Bulb smaller than any of the cultivated forms, with very thin imbricated scales, of a pale yellowish-white colour; the foliage, ovate, oblong. Stems from 4 to 5 feet high, cylindrical, olive-coloured or blackish-green, richly covered with foliage, perfectly smooth, shining. The lower leaves are about 1 foot long, the upper ones very much smaller and shorter, sessile, richly veined; and the upper also undulate, dark green, somewhat browned by the sun in Italy. The inflorescence very large, sometimes with sixteen flowers, pyramidal, very elegant, and flowering in Calabria in the middle of May. The flowers are smaller, the perianths not close together, and very much smaller than that of any cultivated form. Stamens very long, with small anthers and sulphur-yellow pollen, while that of my garden form is golden-yellow. Style large, thick. It fruits freely, and never fails to do so. Capsules large, regular, with seeds capable of germination. This interesting Lily must become very useful for raising garden hybrids. *Ch. Sprenger.*

FIXATION OF NITROGEN BY ALGÆ.

WHEN we expose pots of sand to which phosphates, potash, and magnesium salts have been added, to the usual soil of a garden, we soon find that they get covered with various green algæ; and if we chemically analyse the surface of the sand, we often find a considerable amount of nitrogen, rising sometimes to as much as 0·08 per cent.

Messrs. Schloesing, jun., and Laurent observed the fixation of nitrogen by algæ in experiments, in which they noticed the diminution in volume of this element in a confined atmosphere, even in the presence of Leguminous plants, if the sand were covered with green algæ.

Later, M. Kossowitsch has reported that this fixation of nitrogen from the atmosphere by the algæ only took place when these were associated with bacteria. M. Bouilhac found by exact experiments that the alga, Nostoc punctiforme, sown in a sterilised mineral solution without a supply of nitrogen, does not develop, but that it is otherwise when this alga is associated with soil bacteria; this fact has been observed at Rothamsted.

M. Stoklaşa often got vigorous blue Lupins growing in sand, and yet bearing no nodules on their roots. M. Denoussy also observed the same fact, but only when the pots of sand had been invaded by algæ, and especially by

certain species, which avoid full daylight, by retiring below the surface of the sand. It must, however, be recognised that though it is easy to observe the various algæ which cover the sand, and to note that the sand has gained nitrogen, it is much more difficult to see the bacteria presumably associated with the algæ.

To sum up the subject, it is perfectly established that Leguminous plants bear bacterial nodules on their roots, and fix free and uncombined nitrogen from the atmosphere. This is a point gained, and it explains the name of ameliorant plants, by which they have long been designated.

The question may be asked: Are these the only plants which have this power? Do the Algæ equally possess it? Can the lower plants get possession of atmospheric nitrogen only as far as they are associated with bacteria organisms? These points further investigations have to prove.

The above facts have been summarised from Prof. Dehérain's second edition of his *Traite de Chimie Agricole*, 1902. *J. J. Willis, Harpenden.*

TRICHINIUM MANGLESII.

THIS is one of those beautiful Swan River (West Australia) plants which are so unaccountably neglected nowadays (fig. 62). It is one of the Amaranth family, near to Celosia, and the pinkish fluffy flowers are borne in dense heads, each about 2 inches in diameter. It is a greenhouse plant, not very exacting in its requirements, but requiring exposure to sun and air, plenty of water in the growing season, very little at any other time. Our illustration is taken from a plant photographed for us at Kew by Mr. J. Gregory.

HOME CORRESPONDENCE.

BASTARD-TRENCHING GRASS-LAND. — Under the above heading, in your "Notices to Correspondents" for August 16, p. 128, it is suggested to place the sod in the bottom of the trench, subsequently, we presume, when sufficiently decomposed, to be dug up and mixed with the crumb. This is the usual way, but there are some disadvantages belonging thereto. In the first place, the turned-over pabulum is deprived of the fibrous turf which should help to enrich it, and also to keep the mixture free and open. Being buried at the bottom of the trench, the turf holds water like a sponge, which in wet weather is exceedingly detrimental to the comfortable working of the land, and prejudicial to the health of the crop planted thereon. Of this we had some experience here; nor did we get right until we put in some drains to draw the water off. Having this year occasion to trench another bit of turf-land, and availing ourselves of experience, we tried another method. Instead of using a spade and burying the turf in the bottom, a drainer's graft was used, which has a blade 15 inches deep, and a taper of from 5 to 3 inches. The implement was used by an experienced drainer, who, wearing a foot-iron, sent the tool straight down to its full depth, taking narrow spits only, and, when thrown over, chopping the whole up together. In this way the turf gets mixed with the crumb, the consequence of which is that the body of the soil is left free, light, and aërated, which is not the case when the turf is all sent below. This work was done in April, and during the early days of May was planted with Up-to-Date Potatos, 3 feet apart, and without manure, this time using a spade, which further commuted the turf with the crumb thrown over by the grafting tool. The Potato-tops are now looking exceedingly healthy, not run away into long, plethoric haulms full of disease, which is too often the case where land is so richly manured. *W. Miller, Berkswell.*

KONIGA MARITIMA.—I send Königa maritima, which is a semi-wild plant near Bath, and which proves to be quite the neatest and most continuous flowering edging plant I have in the garden. It has been completely covered with flowers for three months and looks as if it would go on for another three, and does not spread, which is a great advantage. It is said to be biennial, but seems perennial here. *H. J. Elwes, Colesborne, Cheltenham.*

PHOTOTROPISM IN FERNS.—In the report of the Scientific Committee of the Royal Horticultural Society of August 19, and in connection with Mr. Henslow's experiments to illustrate the action of light on vegetation, it is stated: "As far as the germination of spores can throw light upon primitive conditions, it has been found that the first cell plate laid down in the unicellular spore of Ferns and Equisetum is approximately in a plane at right angles to incident light, and that the most illumined half lays the foundation of the stem." This statement puzzles me considerably. I am perfectly aware that the prothallus adapts itself, to a certain extent, to the angle of greatest illumination, so much so that with a strong lateral light it stands almost erect, and if the term "first cell plate" is intended to mean the prothallus, my puzzlement is diminished. In that case, however, it is of doubtful correctness, since the first and previous production from the spore is a flattened cell-growth, or incipient prothallus, which is really the "first cell plate." This, however, at that stage has not developed either sets of sexual organs, antheridia or archegonia, and hence it cannot be said that either half of this "first cell plate" "lays the formation of the stem." Neither, so far as I can judge, is this determined later on by more illumination, since whatever angle the prothallus may assume during development, owing to particular light incidence, the foundation of the stem is determined eventually by the segmentation of the fertilised ovum in the archegonium; and the position of the archegonia is a definite one, they being clustered at a point just within the sinus of the cordate prothallus, deep in its substance, and hence always on the same half, however that prothallus may be illumined. How the spores of Equisetum may behave I do not know, but as regards those of Ferns, the only phototropic effect that I can recognise is that of determining to some extent the plane of growth of the prothallus, and as this is undoubtedly benefited by being as flat as possible on the soil so that the rhizoids or roothairs are not drawn out to reach it, a top-light is a cultural benefit and a side-light a disadvantage. That the "foundation of the stem," however, which I take it can only mean the stem of the sporophyte eventually engendered, is determined by the light supply, seems to me absolutely out of the question. *Chas. T. Druery, F.L.S., V.M.H.* [The reference to stem did not apply to Ferns, but to Lycopods and Equisetum. It was the dorsiventrality of the Ferns alone to which I referred as due to more or to less light. *G. Henslow.*]

FIG. 62.—TRICHINIUM MANGLESII, AS GROWN AT KEW.
(Photographed by J. Gregory.)

A SLUG WHICH SUSPENDS ITSELF BY A LINE. —If it will assist to afford information to your correspondent "H. E.," I should like to call attention to the fact that it is now over twenty years since the late Mr. Robert Warner, when writing about slugs in his Odontoglossum-houses (see *Gardeners' Chronicle*, December 3, p. 1722, 1881), said:—"I caught a slug this morning letting itself down from the rafter; it had let itself down a distance of 6 feet from rafter by a very thin thread proceeding from its tail. When it had got to the ground, 7 feet from rafter, I killed it — a small black one, about 1 inch long when fully stretched out." Previously to Mr. Warner reporting this, I had seen a slug suspended in this way, but thought it was only by chance that the slime from the slug had adhered to the rafter, after the slug had slipped away, and not from any will or instinct of the insect. But it was not many weeks later when I had the opportunity of calling my employer's attention to a slug letting itself down from a shelf on which Odontoglossums were grown. Then again, when at Highbury, I remember going into the Odontoglossum-house one morning, and seeing a slug on a flower-spike, notwithstanding that I had

placed some shag Tobacco around the stem near the base, and I felt somewhat doubtful if the slug came over the Tobacco. I therefore entwined more tobacco around the flower-spike a few inches each side of the slug, then disturbing the latter to see if it would pass over the tobacco; but after crawling from one piece to the other two or three times, it decided to let itself off by a slimy web from the tip of its tail. This also was a small, nearly black slug about one inch long. *C. Woolford, Nettlestone, I.W.*

—— I have frequently seen slugs descending from plants, &c., to the ground, for distances of a foot or more, by means of the slime in which their bodies are enveloped. The practice is described in *Nicholson's Dictionary of Gardening. H. J. K., Bangor.*

PROLIFEROUS STRAWBERRY.—Having noticed the description under this heading on p. 159, I send specimens of Potentilla nepalensis, which seem to be something similar; the same plant produces them every year. I wish the Editor would kindly give a comprehensive definition of the meaning of a proliferous plant. In botanical works I find very different definitions, some referring the term to secondary flowers, like the Hen and Chicken Daisy; some to abundance of radical tufts, some to abnormal production of branches or leaf-buds, making the term nearly identical in sense with the English word "prolific." *C. W. Dod, Edge Hall, Malpas, Cheshire.* [If we remember aright, the Potentilla was figured in one of the later editions of Lindley's *Theory of Horticulture*. For an account of the different varieties of prolification (not proliferousness, which has a different signification, and should not have been used in this connection), see Masters' *Vegetable Teratology*. ED.].

LYCHNIS FLOS-CUCULI.—During the excursion of the Dublin Naturalists' Field Club to Enniskillen on July 12, 1902, a pure white form of this plant was found growing in plenty amongst the rosy type on the fringe of Lough Erne at Castle Archdale, co. Fermanagh. A pure white-flowered form of the blue Scutellaria galericulata was also found at the same place, and grew in considerable abundance. The water in Lough Erne has of late years been lowered considerably by drainage works, and it was on the portion of the bank formerly under water that these albinos were found, growing along with Caltha radicans. The locality is only a few yards from the landing-stage of Castle Archdale. *F. W. Burbidge.*

GODETIA MARCHIONESS OF SALISBURY.—Having observed an advertisement in the *Gardeners' Chronicle* of this plant I ordered a packet of the seed, and sowed it the first week in April broadcast along the side of a walk. It is now a mass of bloom, and is very striking. I also potted a few of them in small pots for growing in the windows. It is an elegant and out-of-the-way sort of plant. The Godetias are among the best of hardy annuals; this one is by far the best. They seed freely. *William Carmichael, 14, Pitt Street, Edinburgh.*

THREE VARIETIES OF ROSES NOT MUCH INJURED BY RAIN.—Roses, like some other flowers, have been disappointing this year. A few days now and again there was sunshine, then the rain would fall steadily and unceasingly. The Tea Roses growing against walls have, in spite of these unfavourable conditions, bloomed fairly well, and the first flowers were good, and the plants at the present time are bristling with the second crop of flower-buds and flowers. Certainly some varieties are better than others, and the following three are among our best—viz., Francesca Kruger, which has been covered with flower-buds and blooms since the first week in June; Enchantress, equally good, and the plant is at present covered with flowers; Corallina, sent out by Mr. Paul of Waltham Cross two years ago, is at present a beautiful sight to look upon. This is a Rose with a great future, a vigorous grower, and not subject to mildew. Here it is growing alongside of L'Idéal, which was badly infested with this pest in the early part of the season; but not a speck of mildew has been observed on Corallina. I am sending you a few blooms of each of the varieties mentioned. *J. Jeffrey, St. Mary's Isle.* [Very fresh-looking, uninjured flowers, of fair size. ED.]

SELF-SOWN TREES.—As I am making a plantation entirely composed of trees which have sown themselves in Great Britain, I shall be very much obliged to anyone who can send me, or tell me where to procure, self-sown seedlings of any of the following or other uncommon trees, not more than two or three years old. As such seedlings are usually smothered by grass or shade, or destroyed by rabbits if left undisturbed, it may be the means of saving them. I specially want any Poplars or Willows, any Lime or Elm (except Wych Elm, as it is believed that these seldom or never ripen good seed in England), Pyrus torminalis, Prunus padus, Robinia or Locust-tree (suckers not wanted), Walnut and Black Walnut, any Maple except Sycamore and Norway Maple, any Conifers except Larch, Spruce, Scotch, and Silver Fir, especially Corsican and Austrian Pine. As these last are particularly difficult to move, they would be better left till May. *H. J. Elwes, Colesborne, Cheltenham.*

POTATO TUBERS NOT DECAYING.—Last year the Potato crop was a total failure here, and all the sets remained quite fresh, and not the least decayed. I was informed that most of the seed had been here for at least two years. This year I had a complete change, excepting a few I kept of Snowdrop and Sutton's Seedling. The new seed turned out very satisfactory, but Snowdrop and Sutton's Seedling were again failures, and the sets were quite fresh, although I cut all seeds before planting; so I came to the conclusion that a change of sets is required for this ground. I may state that the ground is inclined to be heavy and rather sticky. In the case of the new seed not a sign of the sets is to be seen. *John Scott, Downside Gardens, Stoke Bishop, Bristol.*

GERBERA JAMESONI.—Referring to the degree of hardiness of this plant, and the notes in your issue of August 30, I can say, from the opposite end of England, that plants raised by me from seed in 1900, and put out in June, 1901, survived last winter in the open here, with no protection other than a frame light tilted over them, the ends being entirely open, and one edge of the light resting against a wall behind them. They are growing and flowering vigorously, though the blooms have not yet quite attained the size mentioned by Mr. Jenkins. Last winter here was long and very trying for delicate plants, and I find on four occasions the minimum thermometer, in a screen about 4 ft. above-ground, recorded more than 13°, and on one occasion more than 19° of frost. I am of opinion that G. Jamesoni (properly grown, of course) will prove hardier than generally supposed; and no doubt, when my plants are longer established, they will be more fitted to withstand frost. *Wm. T. Hindmarsh, Alnbank, Alnwick.*

—— May I be allowed to pass a few remarks concerning this plant, which has recently been discussed in these columns? I have lately seen in this neighbourhood a good specimen of the plant, which has been successfully wintered on a south border, with the protection of a hand-light in severe weather. I should say that in time this beautiful plant may prove quite hardy. *J. Murray, Lythe Hill Gardens, Haslemere.*

RECENT MARKET PRICES.—I should like to inform your correspondent "E. H. J." that I did carefully read his remarks, all of which I entirely coincided with, excepting his remark concerning Cabbage. These have yielded a short supply and have proved far more remunerative to growers than even Peas, while a glut of the latter was on the market. This was my reason for informing "E. H. J.," who evidently did not know the demand that existed for the "coarse" Cabbage. *C. H.*

THE DROPMORE ARAUCARIA.—I was some what surprised to read "A. R.'s" note, p. 16 which is altogether misleading. If after h six weeks' charge he found manure banke around the trunk of the tree it is ve certain there was no particle of manure ne the tree before he took charge. T surface soil was bare and sloped on eve side from the base of the tree. During m time at Dropmore the only top dressing us for Conifers consisted entirely of clayey loa and old potting refuse, and when water w applied occasionally in summer a little strav manure was scattered down to water upon an act as a light mulch. The tree was in the be of health when I last saw it, and this is all I a responsible for, and I shall enter no furth into the controversy. *C. Herrin.*

DISEASED MELONS.—A part of my Luc now spotted Melon plants this year ha behaved exactly as "J. W." describes p. 141 of the *Gardeners' Chronicle* of Aug. 2 Sometimes a lateral branch drooped an withered, and sometimes a whole plan Fortunately, the Melons on those plants whi thus suffered were nearly ripe, so the fru was not injured. On the suggestion of m gardener, I had shaded that part of the hou where the above plants were planted in th ground. Another lot similarly planted, an close by, I thought I would leave unshade to act as a test. These have shown no sign either drooping or withering, and have fru on them. My gardener is one of those wh waters plants "at watering time," wheth they want it or not, and I attribute th withering to too much water in this sunle season. The shading aggravated matters, an left the plants weak. Then when the su occasionally appeared, the Melon plants cou not resist it, and were injured. Last year grew them in pots, and no injury happene *E. Bonavia, M.D., August* 28, 1902.

Obituary.

JAMES PERCIVAL.—Many of our reade more especially those residing in the counti of Lancashire, Yorkshire, Derbyshire, an Cheshire, will learn with regret of the dea of Mr. James Percival, who, up to the time his decease, was one of the most impressi figures to be found at the various gatherin of botanists held in the above counties. F a great number of years he was President the Manchester Botanists' Association, and useful and highly respected member of th United Field Naturalists, and kindred ass ciations. Mr. Percival belonged to a fami whose members were embued with a stro love of Nature, and possessing, one may sa an instinctive desire to understand thorough the forms of life by which they were su rounded, his grandfather being one of th pioneers of the scientific study of botany Lancashire; and from him the deceas inherited his strong desire for the comple study of plant life. He possessed a mo remarkable memory, and a plant once o served by him was never forgotten. He w a modest but most ardent botanist, and was d lighted and ever ready to impart to learne with fluency and accuracy both the Engli and Latin terms for the species, genus, an order of each floral specimen, the origin of i common name, habitat, medicinal qualities, any hoary superstition that might be attach to it.

He travelled in his spare time over th greater part of the British Isles in search plants, and cultivated in his garden at Smit Bridge, near Rochdale, many of the rarities had gathered in his rambles. He was laid to re at Prestwich, at the age of seventy-fou in the presence of many of his frien and fellow-botanists, on the 21st ult. "H had no favourite flower, but loved the all." *J. W. M.*

BOOK NOTICE.

GARDEN AND GROUND.

THIS is a handy little pamphlet setting forth the way to lay out, plant, or improve small or large gardens, "always considering appearance with economy of space, labour, and expense." The author of this useful production is Mr. T. W. Sanders, and the publishers are Messrs. Dawbarn & Ward, 6, Farringdon Avenue, E.C. Valuable hints are given as to the formation of the lawn, the arrangement of shrubberies and flower-beds, the position of the greenhouse, and other details concerning which the amateur needs instruction and advice. As the booklet is evidently intended for those who have little or no notion what to do or how to do it, it would have been desirable not only to give plans, but to explain the manner in which those plans may be translated from the printed page to the surface to be "laid out," the method of pegging out walks and borders, the formation of drains, and so forth. A warning should also be given as to crowding too much, or too many things into a small space, and especially as to the necessity of avoiding the plantation of trees and shrubs, which in a short time will outgrow the space allotted to them. The result is either that the garden gets overgrown, or that distressing mutilation must take place periodically to prevent undue encroachment. The want of such a guide as is furnished by these pages is often brought home to us by enquiries that are made of us—enquiries which the publication of Mr. Sanders' "rural handbook" will enable us more easily to answer.

NEW INVENTIONS.

WHITEWASHING MACHINE (FIG. 63).

THIS expression is to be taken in its literal not in its metaphorical sense, and applies to a spray pump introduced by Messrs. Wallach Brothers, 57, Gracechurch Street, London, E.C. It is intended to replace the tedious "flop-flop" process of the ordinary whitewasher, and is stated to accomplish the work much more neatly and very much more quickly than any workman would do with the ordinary brushes. It can also be used for spraying oil paints that do not contain white lead. It seems to us that it would be of much service in whitening the walls of Peach houses and similar structures, when an insecticide could doubtless be mixed with the wash, taking care not to use Bordeaux Mixture or other liquid containing copper, which would injure the brass. The pump is worked by compressed air, and will throw a spray to the distance of 10 feet. For use in large factories and workshops it would doubtless be very serviceable. Full instructions are given as to the method of using the machine.

TREE-PLANTING IN ALSACE-LORRAINE.—We take the following particulars about tree-planting in Alsace-Lorraine from the *Bulletin d'Arboriculture* for July:—"In Basse-Alsace there are 93,260,638 fruit-trees, in Haute-Alsace 4 982,560, and in Lorraine 3,194,137. As to the kinds, 2,658,011 are Zwetsche, 1,714,597 Apples, 1,391,881 Pears, 895,110 Plums, 397,418 Mirabelle Plums, 327,453 Walnuts, and 243,158 Peaches and Apricots. The population of Alsace-Lorraine is estimated at 1,640,612 inhabitants; there is, therefore, an average of five fruit-trees to each person. In Basse-Alsace the average is the same, but in Haute-Alsace it is only four trees per inhabitant; in Lorraine the average is six trees per inhabitant. In the districts of Boulay and Wissembourg still more fruit-trees are planted, making an average of ten or eleven trees per inhabitant.

SOCIETIES.

ROYAL HORTICULTURAL.

SEPTEMBER 2.—Owing to the hospitality extended by the Royal Horticultural Society to the National Dahlia Society, the Committees of the former Society sat in the canteen upstairs, and all of the ground space of the Drill Hall, Westminster, was filled with exhibits of Dahlias. The holding of the annual exhibition of Dahlias at the Drill Hall led the Council to limit their own show by excluding all groups of plants and collections of cut flowers and fruit, except such as were novelties, and were exhibited for certificates. The Orchid Committee recommended one First-class Certificate and three Awards of Merit; the Floral Committee six Awards of Merit: and the Fruit and Vegetable Committee a Cultural Commendation. In the afternoon, in the canteen, a lecture was delivered by Mr. A. GAUT upon "Hardy Fruits in Yorkshire."

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. C. T. Druery, H. B. May, Jas. Walker, R. Dean, Jas. Hudson, J. F. McLeod, W. Howe, C. R. Fielder, W. Bain, G. Reuthe, Chas. Dixon, E. T. Cook, Chas. E. Pearson, H. J. Jones, E. H. Jenkins, M. J. James, Harry Turner, J. Fraser, and J. Jennings.

Messrs. JAS. GRIEVE & SONS, Broughton Road Nurseries, Edinburgh, exhibited several good strains of flowers. A seedling Dianthus was very showy, the red

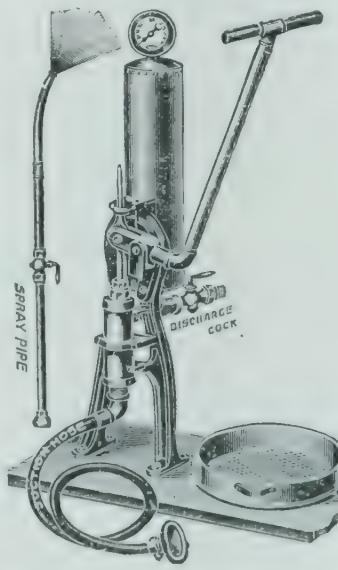


FIG. 63.—A WHITEWASHING MACHINE.

colour being of the most brilliant shade. Some Violas, in which the predominating colours were shades of bronze and purple.

Mr. G. W. PIPER, nurseryman, Uckfield, Sussex, exhibited some nice blooms of his pretty Tea Rose Sunrise from plants in the open ground, and others from under glass; also a fine lot of blooms of a new cream-coloured Tea Rose named Peace.

Sir TREVOR LAWRENCE, Bt., Burford, Dorking, gr., Mr. W. H. White, exhibited a plant of Onosma pyramidalis, a Boraginaceous plant with slender growths about 12 inches to 14 inches long, and red, tubular flowers about 1 inch in length.

Messrs. W. BULL & SONS, 536, King's Road, Chelsea, exhibited a plant of Philodendron corsinia, a handsome green-leaved ornamental plant with large sagittate oblong leaves.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, exhibited several plants of Lindenbergia grandiflora, a new Salvia-like plant with yellow lipped flowers about an inch long, and ovate hairy leaves 2 inches across. It may be grown in pots, just as Salvias are, from cuttings, and the shoots pinched to form a bushy habit. It is said to bloom for a period of three months each year.

AWARDS OF MERIT.

Ceanothus Indigo.—A very deeply coloured variety, shown by Mrs. W. H. BURNS, North Mymms Park, Hatfield (gr., Mr. C. R. Fielder), who showed several varieties with paler flowers, including azureus, Gloire de Versailles, and Arnoldi.

Nymphæa Mrs. Ward.—This a very beautiful American-raised variety, of rosy-violet or pale purple colour, apparently partaking of the character of N. stellata. Shown by LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton (gr., Mr. Jas. Hudson).

Sterculia Russelliana.—A very graceful, Aralia-like plant, shown by Mr. JOHN RUSSELL, Richmond Nurseries, Surrey.

Sweet Pea Dorothy Eckford.—A pure white Sweet Pea of excellent form and size, the best white variety yet raised. From HOBBIES, Ltd., Dereham, Norfolk.

Tea Rose Peace.—A cream-coloured, good late-flowering variety, with long, filbert-shaped buds. A maiden plant lifted from the open ground showed what a very free flowering and an easy grower the variety is; exceedingly fragrant. Shown by Mr. G. W. PIPER (Award of Merit).

Thuya Ellwangeriana pygmæa aurea.—A neat little Retinospora with golden coloured foliage shown by Mr. CHAS. TURNER, Royal Nurseries, Slough. This is probably a variety of T. orientalis.

Orchid Committee.

Present: Harry J. Veitch (Chairman); and Messrs. H. J. Chapman, Jeremiah Colman, F. W. Ashton, W. H. Young, W. Boxall, W. H. White, W. B. Latham, F. Sander, De B. Crawshay, G. F. Moore, H. Tracey, Walter Cobb, J. Wilson Potter, Jas. Douglas, J. W. Odell, T. W. Bond, E. Hill, and H. Ballantine.

Orchids, although few in number, were interesting and distinct.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. W. Thurgood), sent a fine variety of Cattleya Dowiana, the natural hybrid C. Hardyana Warscewiczii × Dowiana aurea, with three finely coloured flowers; and C. Gaskelliana Pitt's var., with small but almost pure white flowers.

Sir T. LAWRENCE, Bart., Burford Lodge, Dorking (gr., Mr. W. H. White), sent a three-flowered spike of the lovely, pure white Habenaria Susannæ.

Mr. W. B. LATHAM, Botanic Gardens, Birmingham, sent a finely grown plant of Cypripedium A. de Lairesse (Curtisii × Rothschildianum).

D. B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr., Mr. W. Staples), sent his home-raised hybrid Odontoglossum Crawshayanum (Hallii × Harryanum). The plant carried a two-flowered raceme, the flowers being larger than when the plant was originally exhibited, and of a brighter colour.

N. C. COOKSON, Esq., Oakwood, Wylam-on-Tyne, in addition to the plants certificated, sent Cattleya × Cybele, Oakwood var. (Luddemanniana × Gaskelliana), and Cypripedium Vexillo-Io, derived from the parentage indicated by the name, remarkable for the manner in which it has reverted to the C. Fairieanum characteristics.

F. WELLESLEY, Esq. (gr., Mr. Gilbert), Westfield, Woking, sent Lælia × Iona (tenebrosa × Dayana, and hybrid Cypripediums.

J. S. MOSS, Esq., Winter's Hill, Bishop's Waltham, sent a plant of Lælio-Cattleya × Wylamiana (crispa × granulosa), the latter species predominating in the shape and general characters of the flower, which has intensely rich purple markings on the lip.

Messrs. STANLEY ASHTON & Co., Southgate, sent the typical form of Oncidium Forbesii, in addition to the certificated variety.

Mr. E. KROMER, Bandon Hill, Croydon, sent Anœctochilus concinnus, a pretty variety with gold markings on the bronzy leaves (Botanical Certificate).

Awards.

FIRST-CLASS CERTIFICATES.

These were awarded to the following plants:—Odontoglossum Wilckeanum Rothschildianum. This is perhaps the oldest of the natural hybrids between O. crispum and O. luteo-purpureum, having been in Mr. Norman Cookson's collection for many years; the flowers are each 4½ inches in diameter, the sepals yellow, heavily blotched and barred with brown; the petals lighter yellow, the central area evenly marked with bright brown markings of irregular sizes and shapes, the lip heavily fringed at the margin, creamy-yellow on the front lobe, a large blotch of purple in the centre and around the prominent hairy disc, and deep orange-yellow at the base. It is one of the most distinct and beautiful varieties we have seen. Lælio-Cattleya × Cooksoniæ, a secondary hybrid, derived from the intercrossing of L.-C. Clive (Dowiana × Dayana) and C. labiata. The sepals and petals deep rosy-lilac, having the form of C. labiata; the large lip wholly velvety-crimson on the outer area, suffused with yellow in the central area, having numerous prominent longitudinal lines of rich purple. It was raised in the collection of N. C. COOKSON, Esq. (gr., Mr. H. J. Chapman), by whom it was exhibited.

AWARDS OF MERIT.

Oncidium Forbesii Bradshawæ.—An albino form of the type, the whole of the purple markings of the typical variety being changed into bright yellow; a most striking addition. From Messrs. STANLEY ASHTON & Co., Southgate.

Cypripedium × *A. de Lairesse* (Curtisii × Rothschildianum).—A fine form of this hybrid was raised and shown by Mr. W. B. LATHAM, Botanic Gardens, Birmingham. The dorsal sepal is white, shading to green at the base, banded with deep purple lines; the petals pale green spotted with dark brown; the lip deep chocolate-brown, shading to green. It is intermediate in character between the parents.

Cattleya Schofieldiana, Hassell var.—A yellow-ground, finely and distinctly spotted variety, with a fine broad lip. From W. P. BURKENSHAW, Esq., Hassel, Leeds.

Fruit and Vegetable Committee.

Present: A. H. Pearson, Esq. (in the Chair), and Messrs. Geo. Kelf, Alex. Dean, W. Bates, F. Q. Lane, Henry Eslings, H. Markham, H. Balderson, and S. Mortimer.

Mr. G. SHAWYER, Cranford, Hounslow, exhibited fruits of a fine heavy Tomato of the Perfection type, and named Cranford Prolific. The clusters were of extra size and weight (Cultural Commendation).

Several seedling varieties of Melons were shown for Certificates, but none gained an award.

From Sir WALTER GILBEY'S garden, The Orchards, Elsenham, Essex (gr, Mr. W. Plester), were shown fruits of four varieties of the Cherry (Mirabelle) Plum, two yellow and two red varieties.

The Lecture.

HARDY FRUITS IN YORKSHIRE.

This lecture was given in the form of a condensed summary of reports collected by Mr. Alfred Gaut from sixty-seven hardy fruit centres in all parts of Yorkshire during the past three years. These have been classified and arranged as giving satisfactory or unsatisfactory results from each centre, and showing the different characters of the soils and subsoils, and the general conditions under which hardy fruits are growing in the county. The lecturer's notes show most clearly that special lists of hardy fruits as arranged for different counties or districts are very misleading, this being particularly noticeable in the Northern counties, where there is such a diversity in the general characters of the soils and subsoils and climatic conditions. These and other influences have a great bearing, not only on the different species of fruits, but their varieties also. Black Currant mite is shown as being very prevalent in Yorkshire; the tables show the satisfactory and unsatisfactory results from the different centres in connection with this pest as being nearly equally balanced.

TAUNTON DEAN HORTICULTURAL.

AUGUST 14.—Among reports of shows, of which the crowded state of our columns of late has prevented the publication, we may instance Taunton Dean, an important West-country horticultural society, usually well supported by amateurs, gardeners, and nurserymen. Specimen plants of the old fashioned species, as Stephanotis floribunda, Statices, Bougainvillea glabra, Allamanda nobilis, Dipladenias, Ericas, &c., are still shown there in the best style.

The large flower show tents, which appeared to be more crowded with competitive subjects than is usual, were seven in number, including one for honey. It was only with the greatest difficulty the plants and cut flowers could be accommodated, but yet everything was ready with commendable punctuality for the judges by 11 A.M.

In the open-to-all tents, stove and greenhouse specimen plants are always a great source of attraction, and the three collections of these in the open class made one of the finest features in this way seen this season. Mr. CYPHER, Cheltenham, was 1st with twelve plants in flower, which comprised three Statices, two of S. profusa and one of S. intermedia, a magnificent example; two very fine Stephanotis floribunda, Bougainvillea glabra and B. Sanderiana, Allamanda nobilis, &c. Mr. WILFRED MARSHALL, Taunton (gr., Mr. W. Thomas), was a very good 2nd instead, and the plants he staged shows that Mr. Thomas is a very skilful cultivator. He had Ixora salicifolia, Rondeletia speciosa major, Dipladenia Brearleyana, Erica Austiniana, &c.

Mr. CYPHER was also 1st with a collection of eight foliaged plants, viz., four huge Palms and four Codiæums, C. Sunset, a fine piece, a fine combination of iridescent hues. There were some good collections of exotic Ferns, the best eight came from Mr. BROCK.

Medium-sized but well grown and bloomed specimens of single and double zonal Pelargoniums were staged; Fuchsias were of the character of well grown and flowered bushes; Cockscombs, which now rarely find a place in schedules of prizes, were certainly much above the average in regard to quality.

In Division B, plants were largely, and in most instances finely, shown by amateurs. Mr. BROCK had the best group; but Mr. MARSHALL came in 1st with twelve stove and greenhouse plants.

There was not so extensive a display of fruit usually seen at Taunton; evidently the season had much to answer for. The 1st prize collection of eight dishes was staged from the gardens of Lady ASHBURTON, Romsey (gr., Mr. Geo. Hall), who had Black Hamburgh and white Muscat Grapes, Royal George Peaches, Pine-apples, Nectarines, fine Moor Park Apricots, &c.; T. K. D. DIGBY, Esq., Sherborne Castle (gr., Mr. T. Turton), was 2nd. Mr. DIGBY took the 1st prize with a Pine-apple.

Melons, Peaches, and Apricots were particularly good; but Apples and Pears, generally so well shown at Taunton, were very few indeed.

Vegetables, on the whole, were very fine, and though shown of somewhat large size, were yet of very fine quality. One large tent was full to overflowing with the produce from cottage gardens.

READING HORTICULTURAL.

AUGUST 27.—Exceedingly fortunate was the executive of this old-established Society in getting for once a really fine day, and the result was a big attendance in the charming Forbury Gardens. The tent area seemed rather limited, as the groups of plants were much crowded. A very fine one of the larger class, quite of the Shrewsbury style, arranged by Mr. Fulford (gr. to F. D. LAMBERT, Esq., Moor Hall, Cookham), not only easily took the 1st prize, but also carried off the fine Challenge Vase offered by the Society. This, having been won for three years in succession by the exhibitor, now becomes his property.

The ordinary classes were, as usual, well filled, but call for no special comment. A very remarkable feature in one tent was a collection of 230 kinds or species of wild flowers, grasses, sedges, and ferns, all having common and botanical names on cards very legibly written. This interesting object-lesson was sent by Mr. G. STANTON, Park Place Gardens, Henley-on-Thames, who presented it as illustrative of the wealth of beautiful wild flowers found in Bucks and Berks. It was also to many visitors an object-lesson in wild plant nomenclature.

Vegetables here are always fine, for Messrs. SUTTON & SONS' valuable cash prizes for collections of twelve dishes invariably lead to severe competition. There were seven collections, making a total of eighty-four dishes. Last year the judging seemed to have been erratic, and created some dissatisfaction. To obviate that trouble this year the judges were supplied with point cases, and the basis of points was that of the Royal Horticultural Society. As is the case with the great Grape class at Shrewsbury, these points were placed on each collection, so that the competitor could note in which dishes he was, in the opinion of the judges, strong or weak. The result was as follows:—

Mr. J. Gibson (gr. to R. W. HUDSON, Esq., Marlow, Bucks) was placed 1st with 70 points out of a possible 75. He had Cauliflowers, Carrots, Onions, Potatos, Tomatos, Celery, Leeks, Runner Beans, Peas, Beets, Turnips, and Parsnips. Mr. E. Beckett (gr. to Lord ALDENHAM, Elstree), came 2nd with 65 points, having similar products in 11 dishes, and using Cucumbers in place of Turnips. Mr. Bowerman (gr. to Lord BOLTON, Hackwood Park, Basingstoke) was 3rd, with sixty-three points. Three other competitors also took prizes.

COULSDON, KENLEY AND PURLEY GARDENERS' MUTUAL IMPROVEMENT.

AUGUST 28.—On the above date the members of the above society visited Kew. After lunch five hours were spent in the historical gardens, under the guidance of Mr. Gregory, of Croydon. Tea was partaken of at 5.30. There was little time for speeches, the only toast, "The Chairman" (A. C. Harper, of Elmshade), was proposed by the Secretary, Mr. Bannerman, and drunk with enthusiasm. After an absence of thirteen hours, Kenley was reached at 9.30, the members expressing the greatest delight with the day's outing, and the wish to again visit Kew. *John Bannerman, Secretary.*

SANDY AND DISTRICT FLORAL AND HORTICULTURAL.

AUGUST 28.—A Society which can issue a schedule of prizes containing 260 classes that include almost everything which can interest country people, and has an additional 224 special prizes, and draw together thousands of people to see the exhibition, must be one of some interest in the country. The Sandy Show is unique in its way. There are 161 classes in which the various produce of the garden can be shown, including floral decorations; eighteen classes are devoted to farm, and forty to market garden produce; some twenty to stuffed animals and birds (the beautiful kingfisher being barred), needlework, carving, and photography; fourteen for honey, butter, eggs, beeswax, trussed fowls, and baker's and home-made bread; seventy classes for dogs, forty-nine for poultry, eighty for pigeons, twenty for rabbits, and thirty-two for cats. A whole army of judges is required; judging commences at half-past ten, and the public are admitted at noon. Sandy must have a good military band, in addition to local ones; but there are no side shows of any kind. A strong human interest attaches to every part of it. Those who have not seen a Sandy Show have missed one of a singularly notable character.

The thirty-fourth annual exhibition was held as usual in the park of Sandy Place, close to the railway station. Several tents were required to accommodate the horticultural portion. Large specimen plants the Sandy folk will have, and such exhibitors as CYPHER of Cheltenham, VAUSE of Leamington, and FINCH of Coventry, competed with ten stove and greenhouse plants in flower, the prizes being awarded in the order of their names. Well grown and bloomed specimen zonal Pelargoniums are shown, and there is a class for a group arranged for effect, in which Mr. W. FINCH was 1st; and Mr. W VAUSE was 2nd. Gardeners showed good foliaged plants, greenhouse plants, Fuchsias, Begonias, very good indeed; Balsams, Cockscombs (there were some very fine specimens from Mr. T. LOCKIE, The Gardens, Diddington Park), &c.

The cut flower tent is the chief attraction at Sandy. It was a very large one and it was filled to overflowing with attractive subjects, and it soon became densely crowded. There were charming Roses for the season. The best forty-eight were from Messrs. HARKNESS & Co., Hitchin; Messrs. G. & W. BURCH, Peterborough, being 2nd; and they were similarly placed with eighteen tea-scented varieties. Mr. C. BRIGHT, Cambridge, was 1st with twenty-four good spikes of Gladioli; Mr. S. MORTIMER, Farnham, with thirty-six Dahlias; and Mr. J. R. TRANTER, Henley-on-Thames, with twenty-four.

Messrs. KEYNES, WILLIAMS & Co., Salisbury, were 1st with twenty-four blooms of Cactus Dahlias, shown on boards; and with twelve bunches of six blooms of the same they included two very fine new varieties, to which Certificates of Merit were awarded—viz. Coronation, brilliant red; and Clarence Webb, rosy-salmon.

Mr. J. WALKER, Thame, came 1st with twelve bunches of Pompons, having them in perfect character. Messrs. HARKNESS & SON, Bedale, were accorded the 1st prizes for twenty-four bunches of hardy herbaceous and bulbous flowers; and Mr. F. M. BRADLEY, Peterborough, with twenty-four bunches of Sweet Peas in excellent character. There were several other cut flower classes, in which gardeners and amateurs exhibited.

There were twenty-four classes for FRUIT, and the judges declared that it was the best fruit show ever held at Sandy. The collections of fruit, the Grapes, Peaches, and Nectarines in particular, were very good; but it was impossible to take notes, so densely were the tents crowded.

VEGETABLES were a very fine feature, and some highly meritorious collections were staged in competition for the special prizes offered by Messrs. Sutton & Sons, E. Webb & Sons, and James Carter & Co. The market garden produce illustrated in an interesting way the staple industry of the district, while the farm produce pointed to the fact that good cultivation prevailed in the county. To particularise even the leading classes among so many would make too great a demand on our space.

A very fine miscellaneous exhibit, consisting largely of Cactus Dahlias, was set up by HOBBIES & Co. (Mr. John Green), Dereham, to which the large Silver-gilt Medal of the Society was awarded. Certificates of Merit were given to Cactus Dahlias Winsome, a charming white; and Hetty Dean; to the large flowered white Everlasting Pea grandiflorus albus, and to white Sweet Pea Dorothy Eckford, both in very fine character. A Silver gilt Medal was awarded to Mr. W. B. CHILD, Acocks Green, for a fine collection of hardy flowers in excellent character; and Silver Medals to Messrs. HARRISON & SONS, Leicester, for cut flowers, &c.; W. & J. BROWN, nurserymen, Stamford, for plants and flowers; F. M. BRADLEY, Peterborough, for Carnations, &c.; and Messrs. HARKNESS & Co., Hitchin, for a collection of Roses. A Certificate of Merit was awarded to Show Dahlia Rose Queen, from Mr. S. MORTIMER.

NATIONAL DAHLIA.

SEPTEMBER 2 & 3.—For the first time the annual exhibition of this society took place in the Drill Hall, Westminster, in conjunction with the meeting of the Royal Horticultural Society; and it must have been a source of great satisfaction to the exhibitors that they had not on this occasion to convey their blooms through London to the Crystal Palace at Sydenham. Though the day was dull, the flowers were yet, on the whole, seen to great advantage, and there was ample room for the entries. Round the sides of the Hall were arranged the trade groups; but complaints were made that it was distinctly understood in the Committee

the National Dahlia Society that no trade collections were to be admitted, else they would have been much more numerous. On the whole, regard being had to the changeable character of the weather, the exhibition was a distinctly good one, though the large show and fancy Dahlias were not nearly so good as in previous years. Some of the blooms were rough, and many undersized. But the numbers and general fine quality of the Cactus varieties amply compensated for any shortcomings in respect of the show type; they overflowed in the building, and formed quite two-thirds of the bulk of flowers. New varieties of this type were numerous, and though no one new variety appeared to be of a specially attractive character, there are some very fine things among the new varieties of the present year. The Pompon varieties were delightful, small, symmetrical blooms being staged generally; while the single varieties were as attractive as ever. A representative of the new Collerette type, President Viger, was seen in Messrs. H. CANNELL & SONS' trade stand, and it promises to make an excellent subject for garden decoration; it is free blooming, and throws its flowers well above the foliage on long stems. A single type with quilled centre was not attractive. The single forms of the Cactus Dahlia were scarcely in evidence. The arrangements made by Mr. S. T. WRIGHT were good, and the judging was got through in good time.

NURSERYMEN.

Show and Fancy Dahlias.—There were four stands of forty-eight blooms distinct. The 1st prize was awarded to Mr. JOHN WALKER, Thame, who had some very good blooms indeed for the season, chief among them Majestic, R. T. Rawlings, John Hickling, James Cocker, William Powell, Purple Prince, Imperial, W. Keith, John Walker, Arthur Rawlings, John Standish, Marjorie, Sailor Prince, Watchman, Duke of Fife, Victor, Plutarch, Kathleen, Plutarch, Mrs. W. Slack, Queen of the Belgians, Dr. Keynes, Mabel Stanton, John Bennett, Mrs. Saunders, Muriel Hobbs, &c.; and Mr. S. MORTIMER, Farnham, was 2nd, and he had good examples of James Cocker, Criterion, William Powell, Archie Mortimer, Mrs. D. Johnson, Matthew Campbell, Victor, Harry Turner, Rosamond, Sunset, &c. Mr. W. TRESEDER, Cardiff, was 3rd. So strong was Mr. Walker, that he was also placed 1st with thirty-six varieties, and here he had a repetition of the varieties above named, Queen of the Belgians, a very delicate flower, was good, and it is an excellent garden variety, throwing its flowers on stiff stems well above the foliage; it is also very free. Chieftain, Mrs. Fisher, John Walker, the best white, and Duchess of York were all very good, and Mr. S. MORTIMER was again 2nd.

Another class of exhibitors appeared with twenty-four and eighteen varieties. With the larger number Messrs. J. CRAY & SON, Frome, were placed 1st; they had in good character Rev. J. B. M. Camm, Wm. Rawlings, W. Powell, Mrs. W. Slack, John Hickling, T. S. Ware, Mrs. Gladstone, Mrs. Saunders, Dr. Keynes, Mabel Stanton, John Walker, and Excellent. Mr. F. W. SEALE, Sevenoaks, was awarded the 2nd prize with eighteen varieties. Messrs. CRAY & SON were again 1st, and Mr. F. W. SEALE, 2nd. Only one collection of twelve blooms was staged, that from Mr. J. R. TRANTER, Henley-on-Thames; on this stand was Florence Tranter, a very pretty, delicate, show Dahlia, which found a place on most stands.

Cactus Dahlias in bunches.—These were shown in two classes by nurserymen, for eighteen and for twelve varieties in bunches of six blooms each. The highest award of the judges went to Messrs. T. STREDWICK & SON, Silver Hill, St. Leonards, who in common with their opponents, Messrs. KEYNES & Co. of Salisbury, and J. BURRELL & Co., Cambridge, staged excellent novelties with varieties already in commerce. In the St. Leonards' collection were Tasmania, primrose-yellow, of good Cactus character; Eva, a good white, a little undersized as shown; Mary Farnsworth, a pleasing shade of delicate primrose with a slight tipping of white; Etna, deep lilac, scarcely appropriately named; Raymond Parks, bright red; Clara, a promising white; H. T. Robertson, pale yellow; Mrs. E. Mawley; Bruce, primrose centre with the florets suffused with rosy-salmon; Miss Florence Stredwick, a charming white; Vesta, J. W. Wilkinson, and Uncle Tom, all fresh, clear, and bright. Messrs. KEYNES & Co., had Clarence Webb, Ophir, and Mrs. J. W. Jackson, a fine dark variety; Gabriel and Columbia, both with bright ground colours tipped with white; Coronation, bright orange-red; Prince of Orange, bright reddish-orange; Mrs. Clark, Maid of Kent, pale rose; Spotless Queen, white; and others. Messrs. J BURRELL & Co. were a remarkably good 3rd.

With twelve bunches of the same number of flowers. Mr. JOHN WALKER was a good 1st; he had excellent bunches of Lottie Dean, Mrs. E. Mawley, Lord Alfreton, Mrs. Carter Page, J. F. Hurdson, and Aunt Chloe, a good dark; Galliard, very bright; Lord Roberts and J. W. Fife, crimson-purple. 2nd, Mr. C. TURNER, Slough, whose best bunches were J. W. Wilkinson, Vesta, Galliard, Meteor, Lyric, Zephyr, Lord Roberts, Uncle Tom, &c.

Cactus Dahlias shown on boards were a good feature, some fine blooms being staged. Messrs. J. STREDWICK & SONS were again 1st with remarkably good illustrations of Mabel, white; Mrs. Wistanley, Hercules, Comet, one of the new striped varieties, of which type the exhibitors have raised three or four; Etna, Green's White, Eva, Clara, Mary Farnsworth, Florence Stredwick, Marjorie, Gabriel, J. W. Wilkinson, H. T. Robertson, Aunt Chloe, Princess, blush; Eric, Ringdove, Friar Tuck, &c. Messrs. J. BURRELL & Co. were a close 2nd, and they had highly developed blooms of Phœnix, bright crimson red; Decima, Mrs. E. Mawley, Ianthe, Sheen, Zoe, J. W. Wilkinson, Alpha, Crispin, Columbia, Mrs. J. P. Clark, Olive, and R. Dean.

With twenty-four blooms, shown in the same way, Mr. W. TRESEDER, Cardiff, was 1st; he had in fine character, Loyalty, J. H. Jackson, Galliard, Lottie Dean, Alpha, Vesta, Uncle Tom, Mrs. E. Mawley, Mrs. J. J. Crowe, &c.

Cactus Dahlias, in vases.—This was one of the most interesting and effective features of the show, though of course the flower-stems were stiffened by means of wires to keep them in an upright position.

With twelve vases, Mr. F. M. SEALE was placed 1st; the varieties good, the flowers admirably arranged with appropriate foliage, and stood upon a white cloth. The following may be said by their appearance to be well adapted for this purpose:—J. H. Jackson, Mrs. J. J. Crowe, Viscountess Sherbrooke, Britannia, Floradora, Jealousy, Starfish, Vesta Galliard, Uncle Tom, and Lord Roberts. Messrs. KEYNES & Co. were 2nd: Coronation, Lyric, Clarence Webb, R. Dean, Artas, and Night, were also good for vase work.

Pompon Dahlias.—There were two trade classes for these—one for twenty-four varieties, and one for twelve, each bunch containing ten blooms. In the larger class, Mr. C. TURNER, Slough, was placed 1st with the following in fine character:—Fosco, Thalia, Bacchus, Lilian, Adelaide, Douglas, Cyril, Monno, Jessica, Mephisto, Daisy, Elsa, Nerissa, Darkest of All. Galatea, Buttercup, Emily Hopper, and Snowflake, all neat, even, and pure. Mr. F. W. SEALE was 2nd; he staged some very good bunches indeed, and had, in addition to the foregoing, Captain Boyton, Ganymede, Hypatia, and Nellie Bromhead.

With twelve varieties, Messrs. J. BURRELL & Co. were placed 1st; they had in excellent character Nellie Bromhead, Bacchus, Violet, Emily Hopper, Daisy, Nerissa, Distinction, Ganymede, Jessica, &c. Messrs. J. CRAY & SON, Frome, were a good 2nd, having nice neat blooms, well arranged.

Single Dahlias.—These were also shown in twenty-four and twelve varieties, eighteen blooms in a bunch, and they made a striking feature, the blooms generally even and not too large. The 1st prize for twenty-four bunches went to Mr. F. W. SEALE, who had Percy Bucknell, Miss Zulema, Girlie, T. Seale, Yellow Queen, Adonis, Royal Sovereign, Victoria, Oceana, Yellow Perfection, Robert Adair, Jeanette, Urban Youens, Beauty's Eye, The Geisha, in the best character, and they form a very good selection. Messrs. CHEAL & SON were 2nd; their best varieties were Duchess of Marlborough, Miss Morland, Cicely, Victoria, Meta, Hilda, Princess Beatrice, Girlie, Miss Girdlestone, W. Parrott, and Naomi Tighe.

In the class for twelve bunches Mr. JOHN WALKER was 1st; he had in good form The Bride, Eclipse, Fascination, Robin Adair, Columbine, Leslie Seale, Miss Roberts, and Naomi Tighe. Messrs. J. CRAY & SON were 3rd.

AMATEUR CLASSES.

Show and Fancy Dahlias.—With twenty-four blooms the veteran Mr. THOS. HOBBS, Downend, Bristol, took the 1st prize, showing in very good character Mrs. Langtry, Rev. J. B. M. Camm, T. S. Ware, Arthur Rawlings, Southern Queen, R. T. Rawlings, Dr. Keynes, Shottesham Hero, Earl of Ravensworth, Marjorie, Prince of Denmark, &c. Mr. THOS. ANSTISS, Brill, was 2nd.

With twelve blooms, Mr. S. COOPER, Chippenham, was placed 1st; and Mr. PARKER, Ivy Hatch, Sevenoaks, 2nd.

There was but one stand of twelve show Dahlias, a good one, which took the 1st prize, from Mr. Blundell, gr. to Mrs. HARRIS, Orpington, Kent.

With a pretty stand of twelve fancy Dahlias, Mr. S. COOPER was 1st; the best varieties were Lottie Eckford, Sunset, Dandy, Frank Pearce, Salamander, Peacock, Mrs. John Downie, Watchman, and Mrs. Saunders. Mr. T. AUSTISS was placed 2nd.

With six blooms Mr. T. HOBBS came in 1st, and Mr. A. PARKER 2nd.

Cactus Dahlias.—These were both numerously and well shown by amateurs, in bunches, in two classes; the largest for twelve varieties in bunches of six blooms, Mr. L. MCKENNA, Twyford, Berks, came in 1st with commendable bunches of Stella, Britannia, Mrs. E. Mawley, W. Jowett, Lord Roberts, Innovation, &c.; Mr. W. PETERS, Baldslow, Hastings, was 2nd. With nine bunches, three blooms in a bunch, Mr. P. W. TULLOCH, Hove, Brighton, was 1st; he had, in good character, Ajax, Galliard, Lucifer (new, orange-salmon), Loyalty, Mrs. E. Mawley, P. W. Tulloch, and Zephyr. Mr. H. L. Brousson, Sidcup Place, Kent, was 2nd. With six bunches of three blooms, Mr. S. COOPER was the only exhibitor, and was placed 1st.

With eighteeen blooms, shown on boards—a very good feature—Mr. H. A. NEEDS, Horsall, Woking, was placed 1st; he had finely developed examples of Alpha, J. F. Hudson, Mrs. J. J. Crowe, Eclipse, Mrs. H. J. Jones, J. W. Wilkinson, and Cornucopia. Mr. J. BRYANT, St. Martin's, Salisbury, was 2nd. With twelve blooms, Mr. L. MCKENNA was 1st, and Mr. H. BROWN, Luton, 2nd. With six blooms, the 1st prize went to Mr. T. G. OLIVER, and Mr. A. PARKER was 2nd. With twelve bunches of Pompons, Mr. A. BROWN came 1st, and Mr. W. C. PAGRAM, The Whin Gardens, Weybridge, was 2nd. With six bunches, Mr. A. BROWN was 1st, and Mr. S. COOPER 2nd.

Amateurs also exhibited single Dahlias. In one class, six bunches of ten blooms each, Mr. J. F. HUDSON, the Secretary, Gunnersbury House, Acton, came in 1st, having in good form Donna Casilda, Tommy, Leslie Seale, Columbine, and Aurora. The Rev. S. S. PEARCE, Woodstock, Oxon, was placed 2nd.

With six varieties, six blooms of each, Mr. E. MAWLEY, the President, Rose Bank, Berkhamsted, was awarded the 1st prize; he had pretty, neat bunches of Beauty's Eye, Tommy, Aurora, and three others.

Decorative Classes.—One for a basket of Dahlia blooms, arranged for effect with any kind of foliage, brought some pretty exhibits. Mr. R. EDWARDS, Otford, Sevenoaks, took the 1st prize with yellow and salmon flowers, with light foliage. Mr. H. A. NEEDS was 2nd; he had Cactus varieties, like Mr. Edwards, but used yellow and red; a pretty basket from Mr. F. W. FELLOWES, Putteridgebury, Luton, was placed 3rd. Vases of Dahlias were also effective, Cactus varieties being mostly used. Mr. R. EDWARDS was 1st with the salmon-tinted Britannia, prettily arranged with bronze and green foliage; Mr. T. G. OLIVER was 2nd.

The class for three vases of Cactus Dahlias brought six exhibitors, Mr. H. A. NEEDS taking the 1st prize with a vase each of red, white, and maroon, set up with tasteful foliage; Mr. A. TAYLOR, North Finchley, came 2nd, he mixed colours in his vases, using medium-sized blooms. The best shown bouquet of Cactus Dahlias came from Mr. W. TRESEDER, who employed a pale yellow variety, with neat foliage; Mr. F. W. FELTON was 2nd, he had red and maroon. Messrs. JONES & SON, Shrewsbury, had a pretty bouquet of yellow and dark flowers, but made it heavy by the too free use of Rhus cotinus.

An attractive class was that six bunches of fancy single Dahlias, i e., edged, striped, and tipped flowers. Mr. F. W. SEALE was placed 1st with charming examples of Duchess of Marlborough, Alice Seale, Victoria, Adonis, Urban Youens, and Columbine. Mr. J. F. HUDSON was 2nd; he had Tommy, Phyllis, Madge, Hilda Gulielma, and Northern Star.

Classes for Maiden-Growers.—Three were set apart for these, and Mr. H. S. STEVENS, Baldslow, St. Leonards, was awarded the 1st prize for six show Dahlias, Mr. H. BROWN, North Street, Luton, for six bunches of Cactus, and Mr. G. QUINLAND, East Grinstead, for six blooms.

The Silver Medal offered by Mr. E. Mawley, for the best bunch of a Cactus Dahlia shown in classes 6 and 7, was awarded to Messrs. J. STREDWICK & SONS, for Miss Florence Stredwick, white, new of the present year, and a second Silver Medal, also given by Mr. Mawley, for the best bunch of a Cactus Dahlia in classes 21, 22, 23 and 25 was awarded to Mr. P. W. TULLOCH for a bunch of Mrs. E. Mawley.

CERTIFICATES OF MERIT were awarded to the following Cactus varieties:—Winsome, pure white, from Mr. J. GREEN, Hobbies & Co., Dereham,

Eva, white; W. F. Balding, bright reddish-crimson; H. J. Jones, yellow ground, delicate salmon, and slightly tipped with white; Vesuvius, yellow, striped with crimson, a fine type of flower; and Etna, delicate lilac ground with a deeper shade. All from Messrs. J. STREDWICK & SON.

F. A. Wellesley, deep bright salmon-red, from Mr. H. SHOESMITH.

Mabel Needs, bright crimson-scarlet, a fine variety, from Mr. S. MORTIMER.

Ianthe, a fine pale orange-salmon, tinted with rose, from Messrs. J. BURRELL & Co.

Show Dahlia Henry Clark, pale ground edged with lilac-purple, and with occasional dashes of yellow on the petals, said to be a sport from the yellow R. T. Rawlings, good size and form, Messrs. KEYNES & Co.; Pompon Snowdrop, white with a slight yellowish-green centre, medium size and exquisite shape, Messrs. J. CHEAL & SON; and Elsa, a small but finely-formed creamy-white variety, from Mr. C. TURNER.

Miscellaneous collections of Dahlias were shown by Messrs. H. CANNELL & SONS, about 170 bunches of Cactus varieties. HOBBIES & Co. (J. Green), Dereham, who had a large collection of Cactus varieties; W. CUTBUSH & SON, Dahlias in variety; BARR & SON, the same; JONES & SON, Shrewsbury, the same; Messrs. SMITH BROS., Upper Norwood, the same.

ROYAL HORTICULTURAL OF IRELAND.

THE recent autumn show in connection with the Royal Horticultural Society of Ireland was held in Merrion Square, which was again kindly placed at their disposal for the occasion. Unfortunately the weather for some time before and up to the opening

hour was anything but propitious, and militated in no small degree against the attendance of visitors. However, at about three o'clock, a change for the better set in, the sun bursting out in welcome splendour, with the result that in the course of the afternoon the gathering assumed large proportions.

As usual, the exhibits were arranged in several marquees erected in the grounds, and the various specimens of fruit and flowers were greatly admired. In point of numbers the exhibits showed a decided increase on those of last year, while the quality, it was gratifying to notice, evinced considerable improvement all round. The actual number of entries, excluding the nurserymen's exhibits, was 310, as against 274 at the corresponding show last year. The judges in the fruit and vegetable exhibits were Mr. A. BLACK and Mr. C. R. HAMILTON, J.P.; in cut blooms, Mr. W. E. GUMBLETON, F.R.H.S., and Mr. HUGH CRAWFORD; and in the extra prizes, Mr. F. W. BURBIDGE, M.A., all of whom have given great satisfaction in their awards for some years past.

The display of flowers and fruit by nurserymen was really fine, that of the Messrs. RAMSAY, Ballsbridge, being particularly good.

The Challenge Cup presented by Lord ARDILAUN for Cactus Dahlias was awarded to Lady FRANCES DOYNE, and the Cup presented by Messrs. RICHARD HARTLAND & SONS for Begonias was won by Lord ASHTOWN; while the Cup given by Messrs. WM. WATSON & SONS, Clontarf, was awarded to Mr. R. W. BOOTH. These Cups must be won three times, not necessarily in succession, to be retained permanently.

The principal prize-winners were, F. A. Millar, Esq., Windsor House, Monkstown, gr., Mr. D. Colohan; B. Drummel, Esq., Bellevue, Booterstown, gr., Mr. T. Byrne; Hamilton Stubber, Esq, Moyne, Durrow, gr., Mr. P. Flannagan; Lord Ardilaun; R. W. Booth, Esq., Victoria House, Dalkey, gr., Mr. J. A. Cavanagh; Lord Cloncurry, gr., Mr. Rigg; E. D'Olier, Esq., Knocklinn, Bray, gr., Mr. J. Harvey; Lord Dunleath, Ballywater Park, co. Down; Lord Ashtown, gr., Mr. A. Porter; J. R. Digges, Esq., Duncairn, Eglinton Road; Surgeon-General T. Beaumont, Palmerston Park; Marquis of Downshire, Hillsborough Castle, &c.

GROWING MELONS & CUCUMBERS IN POTS.

PARTLY from lack of convenience for planting out in beds in the usual manner, I was compelled to adopt the pot method of cultivation for Melons and Cucumbers during a part of the year, and I have had no reason to regret having to adopt it. My chief fear was, that in the case of the Cucumber plants they would give out and cease to bear after a short time. My fear on this head was not borne out by results, for finer Telegraphs were never cut from a bed, and the length of time during which the plants continued to produce excellent fruits was equal to that of any that I had planted in frames. The same may be said of the Melons, which consisted solely of the Cabul variety, one not much grown nowadays, but which has fine flavour, thick flesh, and moderate size to recommend it, while as many as six may be grown on a plant. The pots were 18 inches in diameter, and were not quite filled with naturally rich loam for the Melon, and loam and dung for the Cucumber plants. The soil had additional soil put on the top, when the plant seemed to need an extra fillip; but nutriment in the form of liquid-manure was afforded when the plants were in full bearing, at which time the roots are very numerous. No fear of souring the soil then, as is the case with extensive beds in pits and frames.

The Melons were grown against the back wall of a succession Pine-pit, a simple lean-to, the pots plunged in the tan bed, and supported from beneath by a pillar of dry bricks. The bine was trained on strands of wire running along the back wall, so as not to throw shade on the Pines. We had more Melons than could be used that season, and the fruits were much praised.

The Cucumber-pots were sunk in a bed of tree-leaves over hot-water pipes, and also supported from beneath; and the pit—a hip-roofed one used for propagating purposes, had a path running down the middle. The bine, not being in the way of anything, was allowed to extend on the north side from end to end.

The Melon-plants were accorded the treatment usual in a Pine-pit, and the Cucumbers in the propagating-house were kept much dryer as regarded the air, and afforded more ventilation than is now the fashion. It may be said that in the summer there was not much plant propagation going on that demanded any very special conditions, and but little fire-heat was employed.

I think that the straits to which a gardener is put at times compel him to leave the dearly-loved beaten track to his advantage, as he very frequently finds that there is more than one way that leads to success, and good is done if he lets others share his experiences. *Melonis.*

R.H.S. FRUIT AND FLORAL COMMITTEES AT CRICKET.

A VERY pleasant game of cricket was played at Gunnersbury Park on Wednesday last between members of the above bodies. When play commenced at noon the sun was shining beautifully. The pitch, which is the finest in West London, was rather slow, owing to recent heavy rains. If the play was not of the highest order, the good feeling which characterised the whole of the proceedings fully compensated for any lack of skill in wielding the willow.

The Fruit Committee, captained by Mr. G. Woodward, batted first, scoring 47, Messrs. Beckett, Parker, Iggulden, and the captain being responsible for the major portion of the runs. Small as was the Fruit Committee's total of 47, it proved to be too high for the Floral Committee, who were only able to register 32.

At the second time of asking the Fruit Gentlemen knocked up the respectable score of 87 for 6 wickets, and then the innings was declared closed. This time Messrs. Parker, Reynolds, Iggulden, and Woodward played particularly bright and attractive cricket.

Upon going to the wickets a second time, the Floral Committee fared even worse than before, the whole side being out for 33.

For the winners Messrs. Beckett, Woodward, and Parker bowled remarkably well, and for the losers, Messrs. Howie (Captain), and Fielder handled the ball with great skill.

The players and friends, amongst whom were several ladies, lunched together in a tent erected on the ground after which W. Marshall, Esq., proposed, and H. Balderson, Esq., seconded a hearty vote of thanks to Leopold de Rothschild, Esq., for allowing the use of his beautiful ground, and giving the company the privilege of inspecting the gardens and glass-houses of his Gunnersbury estate.

The umpires were Mr. S. T. Wright, and Mr. Thomas Humphreys.

SCORES.

FRUIT AND VEGETABLE COMMITTEE.

	First Innings.		Second Innings.
R. Parker	8		14
A. H. Pearson	0		7
G. Reynolds	7		23
W. Bates	3		0
E. Beckett	10		1
H. Esling	2		
M. Gleeson	0		
G. Kelf	2		
G. Woodward	6		20 not out
A. Dean	0		
W. Iggulden not out	7		16
Extras	2		6
Total	47		87 for 6 wickets.

FLORAL COMMITTEE.

	First Innings.		Second Innings.
C. E. Pearson	0		0
C. J. Salter	0		0
C. Dixon	2		0
J. Hudson	7		4
C. R. Fielder	7		1
W. Howe	6		17 not out
J. Walker	2		4
E. Jenkins	2		4
W. Drury	0		0
H. J. Jones	2		1
R. Dean	2		0
Extras	2		2
Total	32		33

NOVELTIES.

PARAFFIN SOAP.—Messrs. Timothy & Sandwith, Bracknell, Berks, send a sample of their paraffin soap, which seems well suited as an insecticide for greenfly and other insect pests.

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period August 24 to August 30, 1902. Height above sea-level 24 feet.

1902. August 24 to August 30.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 24	S.W.	62·4	59·0	70·0	59·0	0·03	63·0	61·0	58·1	56·9
MON. 25	W.S.W.	62·1	57·0	64·2	50·0	...	62·8	61·2	58·4	42·3
TUES. 26	N.E.	62·7	55·7	70·2	47·7	...	62·2	61·2	58·4	40·3
WED. 27	E.S.E.	56·6	55·8	71·0	49·3	0·02	61·2	61·0	58·3	41·0
THU. 28	E.S.E.	62·9	58·9	76·2	48·2	...	61·0	60·8	58·4	39·5
FRI. 29	E.S.E.	69·7	61·7	78·3	53·3	...	61·2	60·6	58·4	45·6
SAT. 30	N.E.	60·1	56·5	63·7	56·8	0·03	62·0	60·8	58·3	47·2
						Tot				
MEANS	...	62·4	57·8	70·5	52·0	0·08	61·9	60·9	58·3	44·7

Remarks.—Very little rain has fallen during the week, while the weather has become brighter and warmer.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending Aug. 30, is furnished from the Meteorological Office:—

"The *weather* during this period showed a marked improvement on that of the week immediately preceding it, rain falling less frequently, and sunshine being very prevalent. Thunderstorms were, however, experienced in Scotland during the earlier days of the week, and also in many parts of England a little later on. Some of these were accompanied by very heavy rains, and at some stations severe hailstorms.

"The *temperature* did not differ materially from the mean over the kingdom as a whole, but was 2° above it in England, S. The highest of the maxima occurred, as a rule, on Friday, and ranged from 81° in England, S. and E., and 79° in the Channel Islands, to 70° in Scotland, W., England, N.W, and Ireland, S., and to 69° in Ireland, N. The absolute minima (registered on irregular dates) were as low as 34° in Scotland, E., 35° in Ireland, N., and less than 40° in several other districts. In England, N.E. and S., however, the thermometer did not descend below 44°, while in the Channel Islands the minimum was 49°. The lowest temperature recorded by a thermometer exposed on the grass was 32° at Ochtertyre, and occurred on Friday.

"The *rainfall* was less than the mean in all districts, the fall being especially slight in the North of England and East of Scotland.

"The *bright sunshine* exceeded the mean in all districts excepting the Midland Counties, and the excess was generally large. The percentage of the possible duration ranged from 60 in Ireland, N., 59 in Ireland, S., and the Channel Islands, and 57 in Scotland, W., to 39 in the Midland Counties, and 34 in Scotland, N."

THE WEATHER IN WEST HERTS.

A WEEK of variable temperature. On the warmest day the highest reading in the thermometer screen was 77°, whereas on the coldest night the exposed thermometer registered only 40°. The temperature of the ground both at 1 and 2 feet deep was again, on the whole, about seasonable. The first three days of the week proved fine, but since then ½ inch of rain has fallen. The three fine days here mentioned formed the longest period of dry weather that occurred during August. There has been steady percolation through the bare soil gauge throughout the week. The sun shone on an average for less than three hours a day, or for not more than half the usual duration at this time of year. The winds were extremely light; in fact, on three days the rate of movement of the air at 30 feet above the ground averaged only about half a mile an hour. For the first three days of the week the atmosphere was tolerably dry, but remained unusually moist during the rest of it.

AUGUST.

This was the coldest August since 1896. At no time was there any exceptional cold or heat. There occurred only two unusually warm days, and on the coldest night the thermometer exposed on the lawn never fell

lower than 36°, which is a high extreme minimum for the month. Rain fell on eighteen days, to the total depth of 3⅛ inches, or ¾ inch in excess of the August average. As regards the rainfall, however, the most noteworthy feature was its persistency. During the seventeen years over which my observations at Berkhamsted extend, there has been only one other August with such a scanty record of sunshine; this year it averaged only 4½ hours a day. In no other August during the same period has the atmosphere been as calm — the mean rate of movement being only 2½ miles an hour. Another exceptional feature was the unusual amount of moisture in the air. This is shown by the fact that during the month more than one-third of the total rainfall came through the 2½ feet of earth, in the bare soil percolation gauge.

THE SUMMER.

Each of the three summer months was more or less cold, and taking the three together the mean temperature was lower than in any summer since 1892. The rainfall was slightly below the average, for although June and August were both wet months, the fall in July on the other hand proved extremely light. In all three months the sunshine was deficient, the deficiency averaging nearly an hour a day for the whole season. *E. M., Berkhamstead, September* 2, 1902.

MARKETS.

COVENT GARDEN, Sept. 4.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. ED.]

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen	2 0	2 6
Beans, dwarf, per sieve	1 0	1 6
— Scarlets, bus.	0 9	1 3
Beetroots, per bushel	2 0	2 6
Cabbage, p. tally	1 6	2 6
Carrots, per doz. bunches	0 9	1 0
— bag (washed)	3 0	—
Cauliflowers, per dozen	1 0	1 6
Celery, per bundle	0 9	1 0
Cress, per dozen punnets	1 3	—
Cucumbers, per dozen	1 0	2 4
Endive, new French, p. doz.	1 0	—
Horseradish, foreign, p. bunch	1 6	2 0
Leeks, 12 bunches	1 0	—
Lettuces, Cos, per score	0 6	1 0
— Cabbage, per dozen	0 3	0 6
Marrows, Vegetable, dozen	0 6	1 0
Mint, doz. bunches	1 0	—
Mushrooms, house, per lb.	1 0	1 3
Onions, new, green, doz. bunches	1 6	2 0
— bag	3 0	3 6
— foreign, case	5 6	6 0
— picklers, per sieve	2 0	2 6
Parsley, doz. bun.	1 0	1 6
— sieve	0 6	1 0
Peas, English, per bushel	2 0	4 0
— bag	4 0	6 0
Potatos, per ton	60 0	90 0
Radishes, p. doz. bunches	0 9	—
Salad, small, punnets, per doz.	1 3	—
Shallots, per doz.	0 2	—
Spinach, English, bushel	2 0	—
Tomatos, English, per doz. lb.	3 6	4 0
— Channel Ilds. per lb.	0 3	0 3½
Turnips, new, per dozen	2 0	2 6
— bags	2 3	3 0
Watercress, per doz. bunches	0 3	0 6

CUT FLOWERS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Arums, per doz.	2 0	4 0
Asparagus Fern, per bunch	0 6	1 6
Asters, per dozen bunches	2 0	12 0
Chrysanthemum, various, per doz. bunches	4 0	12 0
Coreopsis, per doz. bunches	0 6	1 0
Dahlias, per doz. bunches	3 0	6 0
Eucharis, per dozen	2 0	3 0
Carnations, per bunch	0 6	1 6
Gaillardia, dozen bunches	1 0	1 6
Gladiolus, The Bride, per doz. bunches	2 0	3 6
— Brenchlyensis, per dozen spikes	1 0	1 6
— various, dozen bunches	1 0	2 0
Gypsophila, per bunch	0 2	0 4
Iceland Poppies, per dozen bunches	0 6	1 0
Lilium album, per dozen blooms	1 0	2 0
— Harrisii, per bunch	2 0	3 6
Lilium rubrum, per dozen blooms	1 0	1 6
Lily of the Valley, per dozen bunches	4 0	12 0
Lobelia, Red, per dozen bunches	3 0	4 0
Marguerites, Yellow, per dozen bunches	0 6	1 6
— white, per dz. bunches	1 0	2 0
Michaelmas Daisies, per dz. bunches	3 0	6 0
Montbretias, per doz. bunches	4 0	6 0
Pelargoniums, Scarlet, dozen bunches	2 0	3 0
Phlox, per dozen bunches	3 0	4 0
Roses, Mermet, p. bunch	0 6	2 0
— red, p. dozen bunches	3 0	8 0
— various, doz. bunches	3 0	18 0
Smilax, per doz. trails	1 6	2 6
Sweet Peas, doz.	0 9	1 6
Sunflowers, per doz. bunches	1 0	2 0
Tuberoses, per doz. blooms	0 3	0 4

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, English, per sieve	1 3	2 6
— Quarrendens, per sieve	4 0	6 0
— Suffields and various cookers, per bush.	2 6	4 6
Apricots, dozen	1 0	1 6
Bananas, bunch	7 0	10 0
— loose, dozen	1 0	1 6
Cobnuts, per lb.	0 3	0 4
Figs, per dozen	1 0	2 0
Filberts, per lb.	0 2½	0 3
Gages	5 0	6 0
Grapes, new Hamburgh, per lb.	1 6	2 0
— — B., per lb.	0 4	1 0
— Alicante, lb.	0 8	1 6
— Colmars, lb.	1 0	1 6
Grapes, Belgians, per lb.	0 4	0 9
— Muscats, A., per lb.	2 0	3 0
— — B., per lb.	0 6	1 0
Lemons, per case	15 0	25 0
Melons, foreign, each	0 3	1 0
— English, each	1 0	3 0
Nectarines, A., per dozen	8 0	12 0
— B., per dozen	2 0	5 0
Oranges, per case	15 0	—
Peaches, A., per dozen	8 0	12 0
— B., per dozen	1 6	5 0
Pears, per sieve	1 6	3 6
Pines, each	2 6	4 6
Plums, sieve	2 6	5 0

PLANTS IN POTS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Adiantums, dozen	4 0	9 0
Arbor Vitæ, per dozen	9 0	18 0
Aspidistras, doz.	18 0	36 0
Asters	2 0	4 0
Campanula, per dozen	2 0	6 0
Chrysanthemum, various	6 0	24 0
Coleus, per dozen	3 0	4 0
Crotons, per doz.	18 0	30 0
Dracænas, var., per dozen	12 0	30 0
Euonymus, vars., per dozen	4 0	6 0
Ferns in variety, per dozen	4 0	30 0
Ficus elastica, per dozen	9 0	24 0
Fuchsias, per dozen	2 0	4 0
Lilium rubrum, per dozen	6 0	9 0
— album, per dozen	6 0	9 0
Palms, various, each	1 0	20 0
Pteris tremula, per dozen	4 0	8 0
— Wimsetti, per dozen	4 0	8 0
— major, per dozen	4 0	8 0

REMARKS.—Vegetable Marrows per tally fetch 1*s.* 6*d.*, and only a few of the best 1*s.* doz.; Cauliflowers are easier in price; Corn cobs fetch per doz. 2*s.*; Melons sell for any price from 2*d.* upwards; Mushrooms Out-of-door from 6*d.*, but there is little demand. The best French Pears in crates fetch 7*s.* to 10*s.*, and Californian Plums fine, in cases 7*s.* 6*d.* to 10*s.*; Brussells Sprouts at per sieve, 1*s.* 6*d.*, find but little demand, and only a few samples of Potatos realise 90*s.*

POTATOS.

Various samples, 70*s.* to 80*s.* per ton. *John Bath, 32 & 34, Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

GLASGOW, *September* 3.—The following are the averages of the prices during the past week:—Apples, American, 22*s.* to 25*s.* per barrel; English, 18*s.* to 20*s.* per cwt.; Pears, Argus Williams', 3*s.* 6*d.* to 4*s.* 6*d.* per case; Duchess, 3*s.* to 3*s.* 6*d.* do.; Havre Williams', 6*s.* to 7*s.* do. Lemons, Naples, 14*s.* to 20*s.* per case; Grapes, English, 10*d.* to 1*s.* 6*d.* per lb.; do., Scotch, 9*d.* to 2*s.* 6*d.* do; Green Gages, 4*d.* to 7*d.* do.; Raspberries, 5*d.* to 6*d.* do.; Currants, Black, 6*d.* to 8*d.* per lb.; do., red, 3*d.* to 4*d.* per lb.; Melons, 5*s.* 6*d.* to 7*s.* per case; Plums, 12*s.* to 14*s.* per cwt.; Mushrooms, 1*s.* 3*d.* per lb.; Tomatos, 5*d.* to 8*d.* do.; do., English, 4*d.* to 6*d.* do.; do., Guernsey, 5*d.* to 6*d.* do; Onions, Valencias, 3*s.* to 6*s.* per cwt.

LIVERPOOL, *September* 3.—*Wholesale Vegetable Market.*—Potatos, per cwt.: Early Regents, 2*s.* 2*d.* to 2*s.* 6*d.*; British Queen, 2*s.* 6*d.* to 2*s.* 9*d.*; Maincrop, 3*s.* 2*d.* to 3*s.* 6*d.*; Kidneys, 2*s.* 6*d.* to 3*s.*; Turnips, 5*d.* to 7*d.* per dozen bunches; Swedes, 1*s.* 6*d.* to 1*s.* 9*d.* per cwt. Carrots, 6*d.* to 8*d.* per dozen bunches; Onions, foreign, 3*s.* to 8*s.* per bag; Parsley, 4*d.* per dozen bunches; Lettuces, 6*d.* to 8*d.* per dozen; Cucumbers, 1*s.* 3*d.* to 2*s.* 6*d.* do.; Cauliflowers, 6*d.* to 1*s.* do.; Cabbages, 6*d.* to 2*s.* do.; Celery, 1*s.* to 2*s.* do.; Peas, 4*s.* 6*d.* to 6*s.* per hamper; Beans, 2*s.* 6*d.* to 2*s.* 9*d.* do.; do., Kidneys, 1*s.* to 1*s.* 3*d.* per peck; do., Scarlet Runners, 1*s.* to 1*s.* 3*d.* do. *St. Johns:* Potatos, 1*s.* per peck; Cucumbers, 3*d.* to 6*d.* each; Peaches, 4*d.* to 8*d.* do.; Grapes, English, 1*s.* to 2*s.* 6*d.* per lb.; do., foreign, 6*d.* to 8*d.* do.; Pines, foreign, 5*s.* to 7*s.* each; Filberts, 8*d.* per lb.; Mushrooms, 8*d.* to 1*s.* per lb. *Birkenhead:* Potatos, 8*d.* to 10*d.* per peck; Peas, 1*s.* to 1*s.* 4*d.* do.; Cucumbers, 4*d.* to 6*d.* each; Grapes, English, 1*s.* to 2*s.* 6*d.* per lb.; do., foreign, 4*d.* to 8*d.* do.; Mushrooms, 6*d.* to 1*s.* do.

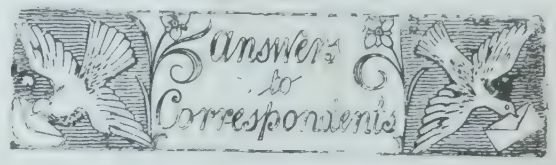
CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending August 30, 1902, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1901.		1902.		Difference	
	s.	d.	s.	d.	s.	d.
Wheat	27	0	31	7	+ 4	7
Barley	24	3	26	2	+ 1	11
Oats	17	10	21	0	+ 3	2

SEEDS.

LONDON, *Sept.* 3.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., describe to-day's market for Red Cloverseed as exceedingly strong; the persistent heavy rains having now without doubt wrought great havoc to both the English and Continental crops. Meantime full prices are asked for Alsyke, White and Trefoil seeds. There is no alteration in Ryegrasses; Trifolium continues good, cheap and abundant; Winter Tares and Rye Corn are wanted; for Mustard and Rapeseed the sale is slow on former terms. As regards Canary seed the tendency is still upwards, but other Birdseeds are lifeless. New Blue Peas are now obtainable; Haricot Beans keep scarce and steady.



***** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.**

ALTERNANTHERAS AT ROYAL GARDENS, KEW: *W. T.* The Curator might answer your question. We are unable so to do.

BOOKS: *K. Diseases in Plants*, by Marshall Ward. (Macmillan & Co.) Price 7*s.* 6*d.*—*Perplexed. The Tomato: its Culture and Uses*, by W. Iggulden, at the office of the *Journal of Horticulture*, 12, Mitre Court Chambers, Fleet Street, E.C. Price 1*s.* *Manures and their Respective Merits*, by A. W. Crews, at the *Field* office. Price 2*s.* 6*d.*; the first edition is twenty-two years old.

CAMPANULA PYRAMIDALIS WITH PINK-COLOURED FLOWERS: *Jno. Snell.* There are said to be several excellent varieties besides the blue and white ones common in gardens, but we have not observed a pink-coloured one.

CARNATION SOUVENIR DE LA MALMAISON: *Papilio.* The origin of this hybrid is not known. It came into commerce in France at the beginning of the nineteenth century, and is supposed to have been found in a garden at Metz.

FUNGUS, *Pan-Adam.* The woody fungus is Polyporus dryadeus, Fr.; and the orange Agaric, Pholiota spectabile, Fries. Neither of them uncommon.

FUNGUS IN HOUSE TIMBER: *J. O'B.* Meruleus lacrymans, the cause of dry rot.

INSECT: *H. & Sons.* Sirex gigas, the giant sawfly, injurious to trees.

LAGERSTRŒMIA: *W. O.* Pot in sound turfy loam, with a small quantity of peat or leaf-mould (one-eighth) added. Potting and repotting may be performed in the spring just previous to the commencement of growth, and should be as firmly performed as when orchard-house trees are potted. Through the spring and early summer—say to Midsummer-day—the plant may remain in an intermediate-house (in more southerly counties than Essex in the greenhouse or conservatory), and be treated similarly to the other inmates. After the date given above, the warmth of a greenhouse, or that afforded by a position in the full sun in the front of a south wall, would suit its requirements. The chief points to be observed are the perfect ripening of the wood, and not to over-pot.

LIME-LEAVES: *N. C. D.* The prickles are galls produced by an insect for the protection of its larva. They are commonly called nail-galls.

MOTHS AND BUTTERFLIES: *Papilio.* Both belong to the "scale-wing" order, Lepidoptera. The moths to the subdivision Heterocera, and the butterflies to that of Rhopalocera. The chief points of distinction are that in moths the antennæ are pointed at the end, and some of them have the ends much enlarged; in all these however, the club of the antennæ is elongated and the end is pointed. Mostly the shaft of the autennæ is curved, and in others it is adorned with feathering, hence the name Heterocera "varied horns." The wings of moths at rest are not pressed together over the back, like those of butterflies, but either lie flat on the body or along its sides. The body has no waist like that of the butterflies. Butterflies have their antennæ clubbed or knobbed at the end. They cannot hold their antennæ to the body, as is done by many of the moths, these organs always standing out boldly from the head. The head is very distinct from the thorax, and is never sunk into it. The wings of butterflies are quite rigid and incapable of being folded.

MUSCAT GRAPES: *E. B.* No fungus, but slight rusting from the excess of sulphur.

NAMES OF PLANTS: *W. C., Bath.* Solidago lanceolata.—*Veritas.* Oncidium longipes, often called O. Janeiriense; and Lælia crispa, sometimes called Cattleya crispa in gardens.—*H. W.* The plant found among imported Cattleyas in Cecropia peltata.—*A. R.* We are not able to name the plant. It is a leguminous pod, like that of a Vetch. —*Doubtful.* If you are doubtful, so are we; you send such wretched scraps—mostly withered when we received them and all without flowers. 1, Clerodendron; 2, Calycanthus occidentalis; 3, Andromeda calyculata; 4, Olearia; 5, Halimodendron; 6, Colutea; 10, Berberis [?].—*F. B.* The berries are those of the common Arum maculatum, reputed to be poisonous.—*J. Joy.* Sedum spurium.—*J. R.* Picea polita; 1 to 5 all varieties of Robinia pseudacacia, but we cannot name them more particularly. The leaves were all to pieces when we received them.—*H. P.* We do not recognise the variety of Fuchsia.—*G. W. M.* 1 and 2, Thalictrum; 3, Spiræa sp.; 4, Polygonum polystachyum; 5, P. sachalinense; 6, Spiræa palmata.—*Thomas Smith.* 1, Tamarix gallica; 2, Aconitum lycoctonum; 3, Betonica grandiflora; 4, Dianthus deltoides.—*G. W. M.* 1, Thalictrum angustifolium, probably; 2, T. minus, we cannot say definitely without seeing flowers.—*W. J. W.* Trifolium arvense.—*W. G.* 1, Hornbeam; 2, Turkey Oak, Q. Cerris.—*Winkfield.* Abelia, probably rupestris, send when in flower.—*E. W.* 1, Ligustrum coriaceum; 2, one of the many forms of Thuya orientalis.—*Southwick.* 1, Linaria; 2, Celsia cretica; 3, Ruellia Portellæ; 4, Asparagus plumosus.—*W. C. C.* The Horse Mushroom, Agaricus arvensis, used for ketchup.—*G. E. E.* Spiræa Lindleyana.—*J. F. J.* We will name your Ferns next week. We congratulate you on your energy, and are pleased to help such correspondents as you so far as our time permits. —*W. R.* Medicago officinalis, a wild plant, which often makes its appearance under similar circumstances. *K. P.* 1, Sedum spurium; 2, S. album; 3, S. Telephium variety; 4, Sida malvæflora; 5 and 6, Sedum reflexum; 7, Hieracium aurantiacum; 8, Sedum Ewersii; 9, Campanula rhomboidalis; 10, not found; 11, Sedum spectabile; 12, Geranium not known; another time do not send more than six.—*J. F. T.* 1, Quercus phellos; 2, Pavia macrostachya; 3, doubtful, perhaps Cotoneaster affinis.—*T. A.* 1, Acacia sp.; 2, Fuchsia magellanica; 3, Lychnis chalcedonica; 4, Bocconia cordata; 5, Spiræa Fortunei; 6, Azara microphylla; 7, Colutea arborescens, bladder-senna.

NAMES OF FRUITS: *L. H.* 1, Stanwick Elruge Nectarine; 1, Hardwick Nectarine; 3, Pineapple Nectarine; 4, Stump the World; 5, Royal George Peach; 6, Oldenburg nectarine.

ONIONS: *Papilio.* It would not be a very prudent proceeding for an exhibitor to pit White Spanish or Tripoli against Ailsa Craig or Cranston's Excelsior, unless the conditions under which the bulbs were grown were identical. These might be winter sowing under glass and transplantation later; late autumn or early spring sowing in the open air.

ORCHIDS DISEASED: *Perplexed.* It is not clear what is the primary cause of disease. The fungus which occurs on the blackened spots is either Cladosporium orchidearum (*Gard. Chron.*, October 11, 1890, fig. 82), or very near it. But it is doubtful whether there was not some prior disease, and that the Cladosporium is a saprophyte upon the dead tissue. *M. C. C.* [We consider that you tax our good nature severely by sending so large a number as five at one time for examination, the three hours work involved, if charged for professionally, would amount to several guineas, ED.].

PINES: *J. C.* Spruce-gall is the work of a Chermes. We are not sure about the Pine. we will communicate with you again.

ROSE: *D. G. Williams.* No trace of fungus, and we are unable to tell the cause of the discolouration.

SANDY SHOW: *W. H.* Our report in the present issue is similar to those we have given for years past.

SPLITTING OF STONE FRUITS: *C. W. W.* The cause which we gave is not the only one, as we know; but we, at a distance, and unacquainted with the conditions under which the trees grew, cannot in many cases do more than suggest a cause for the mishap. In cases of imperfect fertilisation we should not expect to find the rudiment of a seed; and Peaches that split usually possess a hard stone and a kernel, though as the stone splits, this decays readily.

THE LATE BRIGHTON SHOW. A correspondent writes correcting a few mistakes made by our reporter on this occasion, viz., Kleinworth should have been printed without the final "h;" Mr. Tollhurst was placed 1st for eighteen, not twelve, bunches of hardy herbaceous perennials; and Aconitum spinosus should have been Acanthus spinosus.

TOMATOS: *Perplexed.* No trace of fungi on leaves or fruits, looks like the effect of draughts or sudden chill, or some external circumstances. *M. C. C.*

TRAVELLING EXPENSES: *Mignonette.* If the circumstances of the case are precisely as you have stated them in your letter you would, we think, gain your case in a County Court.

TREE PÆONY: *J. P.* We do not see any fungus on the leaves; possibly the roots are affected. We will examine the leaves more carefully, and let you know the result.

VINE-LEAVES: *Perplexed.* On some of the leaves the old disease known as Erineum vitis, caused by minute mites or Phytopti. *M. C. C.*

WATERLOO STRAWBERRY: *Jno. S.* If wanted very late plant on a north border, otherwise choose an open sunny spot in the kitchen-garden quarters.

COMMUNICATIONS RECEIVED.—W. Humphreys.—D. Bois —F. W. B.—F. Manson Bailey, Brisbane—L. B.— C. W. W.—E S.—A. H.—E. B.—E. A.—G. H.—J. C.— J. W.—J. Vilbouchewitch, Paris—Rev. D. W.—W. H.— H.—Haven, Copenhagen—B. D. J.—Harold Sadler— H. W. W.—J. B.—A. H., U.S.A.—C. W.—J. W.—J. Watt —J. J.—J. H.—E B.—S. A.—L. B.—R. D.—E. C.— J. O'B.—O. T.—C. T. D.—J. F. J.—J. E. B.—Inquirer— J. P.—E. H. M.—E. W.—W. B. H.—J. Colville.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE.

IMPORTANT TO ADVERTISERS. — *The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper, more than*

☞ TREBLED. ☜

CATALOGUES RECEIVED.

BULBS AND ROOTS.

SUTTON & SONS, Reading, Berks.
W. LAING, Sutton, Surrey.
HAAGE & SCHMIDT, Erfurt.
DICKSON, BROWN & TAIT, 43 & 45, Corporation Street, Manchester.
L. SPÄTH, Baumschulenweg, Berlin.
D. THOMSON, 24, Frederick Street, Edinburgh.
BELL & BIEBERSTEDT, Leith (Wholesale).
VILMORIN, ANDRIEUX ET CIE., 4, Quay de la Mégisserie, Paris.
FISHER, SON, & SIBRAY, Ltd., Handsworth, near Sheffield.
W. PAUL & SON, Waltham Cross, Herts.
DICKSONS, 1, Waterloo Place, Edinburgh.
DICKSON & ROBINSON, Old Millgate, Manchester.
JOHN PEED & SON, West Norwood, Surrey.
CLARK, BROS. & CO., 65, Scotch Street, Carlisle.
ED. WEBB & SONS, Wordsley, Stourbridge.
W. B. HARTLAND, Ard Cairn, Cork.
HARLAND P. KELSEY, Tremont Buildings, Boston, Mass., U.S.A.
CLIBRANS, 10 and 12, Market Street, Manchester.
W. CUTBUSH & SON, Highgate, London, N., Barnet, and 54, Bishopsgate Street Within, London, E.C.
ALBERT F. UPSTONE, 35, Church Street, Rotherham.
KENT & BRYDON, Tubwell Row, Darlington.
TOOGOOD & SONS, Royal Seed Establishment, Southampton.
DOBBIE & CO., Royal Florists, Rothesay, N.B.
TILLEY BROS., 133, London Road, Brighton.
HOGG & ROBERTSON, 22, Mary Street, Dublin.
J. R. PEARSON & SONS, Chilwell Nurseries, Lowdham Notts.
FRANK DICKS & CO., 66, Deansgate, Manchester.
E. P. DIXON & SONS, 57, Queen's Street, Hull.
DOBIE & MASON, 22, Oak Street, Manchester.
R. H. BATH, Ltd, The Floral Farms, Wisbech.
H. CANNELL & SONS, Swanley, Kent. (Also Strawberries and small fruits.)
J. CARTER & CO., High Holborn, London.
EDMONDSON, BROTHERS, 10, Dame Street, Dublin.
BARR & SONS, King Street, Covent Garden, London.

MISCELLANEOUS.

W. CUTBUSH & SON, Highgate, Barnet, &c.—Carnations Pinks, Cloves, &c.
A. L. UPSTONE, 35, Church Street, Rotherham—Roses, Fruit Trees, Shrubs, &c.
DOBBIE & CO., Rothesay, Fruits, Herbaceous Perennials, Roses, Thorns, &c.
TILLEY BROS., 133, London Road, Brighton.
FRATELLI ROVELLI, Pallanza, Lago Maggiore, Italia.
LAXTON BROS., Bedford—Small fruits of all kinds.
S. DOBBIE & SON, Heathfield Gardens, Chester.
LOUIS DE SMET, Ledeberg, Ghent, Belgium—Stove, Greenhouse, and Hardy Plants.
HARLAND P. KELSEY, Tremont Buildings, Boston, Mass., U.S.A.

GARDENING APPOINTMENTS.

Mr. GILBERT HATCH, for the past ten years Head Gardener to Sir JOHN EDWARDS-MOSS, Bart., as Head Gardener to A. B. H GOLDSCHMIDT, Esq., Cavenham Park, Mildenhall, Suffolk.

Mr. JOHN GOWER, for the past two years Gardener at The Oaklands, Bromsgrove, as Head Gardener to W. F. LADENBURG, Esq., The Glovers, Charlwood, Surrey.

Mr. C. HARRIS, as Head Gardener to A. GILBERTSON Esq., Glanrhyd, Pontardawe, R.S.O., Glamorganshire.

Mr. T. COTTRELL, for the past four years Foreman in the Gardens, Havering Park, Romford, Essex, as as Head Gardener to Mrs. ALINGTON, Little Barford House, St. Neots, Huntingdonshire. The sum of 1*s.* 6*d.* sent will be paid over to the Royal Gardeners Orphan Fund.

Mr. A. F. GRUBB, until recently General Foreman in the Gardens, Powerscourt, co. Wicklow, as Head Gardener to Major FORDE, Seaforde, co. Down.

Mr. CHARLES HARVEY, nearly three years Foreman in the Hoo Gardens, Welwyn, Herts, as Gardener to H. G. FEILDEN, Esq., Mollington, Hall, Cheshire.

Mr. E. FAULKNER, for the last eighteen months Gardener at Gayton House, Blisworth, Northants, as Gardener to Mrs. NICHOLAS WOOD at the same place.

Mr. W DEARLING, for the past three years Gardener at Dorman's Park, East Grinstead, as Gardener to Mrs. HALLETT, Reeden's, Newick, near Lewes.

Mr. J. E PARKER, for the past seven years Gardener at Wanlip Hall, Leicester, as Gardener to the Right Hon. Earl FERRERS, Staunton Harold, Ashby-de-la-Zouch.

Mr. RICHARD BROOME, late Foreman in the Gardens at Wanlip Hall, Leicester, as Gardener to T. EVERARD Esq., Narborough Wood Gardens, Enderby, near Leicester.

Mr. G. H. WATKINS, until lately Gardener at Woodcock Hill, Great Berkhamsted, as Head Gardener to DOUGLAS ARDEN, Esq., East Burnham House near Slough, Bucks. He entered upon his duties on September 1.

Mr. H. PRICE, for the past twelve years Head Gardener at Oakfield, Chester, as Head Gardener to Col. H. C. FISHER, Ty Mynydd, Radyr, near Cardiff. The situation was filled by Messrs. DICKSONS, Limited Chester.

Mr. A. SHIPWAY, lately Foreman at Newby Hall, Yorkshire, as Head Gardener at The Grange, Sutton Surrey.

Mr. E. J. HARTNUP, late Foreman in the outdoor department at St. James's, West Malvern, as Gardener to J. CROFT DEVERELL, Esq., Pixham Fir Dorking, Surrey.

THE
Gardeners' Chronicle
No. 820.—*SATURDAY, SEPT.* 13, 1902.

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SOME GARDEN ECONOMIES.

"THE garden that I love." How this sentiment re-echoes in the hearts and affections of multitudes of folk, of all sorts and conditions of men! Whether it be large or small, amateur or professional, the same spirit often pervades alike the Royal Princess, whose keenest and purest delight is to wander at her leisure amid her Rose garden and Carnation borders and drink in the refreshing perfumes and health-giving essences of her favourites, and the humblest working man of the land, smoking his pipe after his day's work, and pondering, it may be, over many things as he takes his well-earned relaxation in his little garden plot. It has always struck me that the cottage front of the poor compares more than favourably with the rich man's pleasure grounds. If not a little of everything, as ofttimes appears to be the case, the flowers seem brighter, more successful somehow, and the *tout ensemble* more pleasing than the grander effort of his mightier neighbour. In many villages, indeed, the whole exterior of the "cittadino's" abode almost to a house is a picture and object-lesson in itself. Of course, from an artistic point of view, the old-fashioned rustic or thatched cottage largely tends to complete the effect, but in any case creepers can be made to beautify the walls and porch of the dweller's home. Then there is that other ever increasing phalanx of toilers of more or less degree in this busy and workaday world, from the wealthy man in high office or the City Crœsus who gets down to his "place" of an afternoon, and finds solace and repose among his elaborate glasshouses and rockeries, the parterres and ingenious carpet-bedding of his excellent head-gardener, right through all the grades of great or little-ness to the small clerk or artisan who at the end of his arduous daily round and common tasks hurries back to finish out the small span of day, remaining amid the quiet prides of his modest sanctum. These latter for the most part are their own gardeners, and their hands must still be busy while the brain is given its needful rest.

To the leisured classes and those who are by circumstances dwellers in the fragrant countryside, these few notes on economies seem almost more appropriate, inasmuch as in their case time is more plentiful in which to note and improve upon little matters of vital or beneficial interest in the garden. The joys of the country and the domestic delights of fruits and flowers are, however, perhaps, happily, not born in all. The Captain Morris type, for instance, who prefers "the sweet shady side of Pall Mall," could not understand their charms, neither the ultra-citizen who thought—

> "To long for more than London gives is imbecile and silly;
> There's not a spot upon the earth as sweet as Piccadilly!"

With this preamble, therefore, I will proceed to advance certain points of help or interest in the garden generally.

WATER.—It is next to impossible to have a superfluous supply on the premises, and that ready for immediate use. A little extra reserve to that which one may originally find will make all the difference between getting through a dry season satisfactorily or not. Weather memories are proverbially short, and such a season as this we are apt to forget that we have had preceding it nearly a decade of very dry springs and several droughty summers or autumns in that period. The present year, therefore, must be taken as no proper test or criterion as to the probability of plants requiring auxiliary help, the downpour having been persistent week after week right throughout the summer. Yet even in such a season as this the spring was one during which the surface-soil for seeds or seedlings was now and again uncommonly dry, and required or was benefited by periodical hand waterings. From this it follows that plenty of water tubs or tanks should be placed at every available spot to catch the drainings from roofs and sheds. These then, however often or quickly used up, speedily fill again with every fresh thunderstorm or showery day.

OVERCROWDING. — One of the greatest mistakes made by amateurs, I have always thought, is overcrowding. No matter whether he is planting Cabbages or Calceolarias, Onions or Roses, he almost invariably puts in many more than are required, allowing for the full space they take when fully grown. They will pay him ever so much better, and produce much finer heads, if they have plenty of room per plant, and, in the case of flowers, look far more effective for being separate and distinct. The same applies to "thinning out." One should harden one's heart, and at an early stage pull out the plantlets liberally, to allow of the proper amount of light and air between each seedling. As regards the original sowing, there is with gardeners and amateurs alike an enormous amount of waste. Free germinating kinds could, with a great saving in economy, be sown far more sparsely than they are wont to be; and this too would save a lot of tedious time when the thinning-out time arrives. As regards root vegetables generally, whether Carrots, Onions, Parsnips, Beet, Celery, or what not, a proper interval between each plant will produce a much greater weight of stuff than if left in a crowded condition.

SPACE.—It is my own practice to save a good deal of room by utilising the borders with vegetables or flowers instead of the orthodox box. I have at the moment down the entire length of my kitchen garden a grand row of Sweet Peas, which could not otherwise be there but for the fact that it is in the border, and therefore not taking off any ground from the vegetable domain. This in due time will be followed by some close-growing crop, to occupy the space during the winter months. This method often means the husbanding for other crops, perhaps an extra bit of Potato or a patch of Lucerne, a good slice of the garden proper. Both Pansies and Pinks look neat and pretty as a border—the former, if kept moist at droughty times, lasting two years, and the latter being a permanency and always doing themselves credit, whether in flower or in foliage only. Parsley makes an excellent edge, so do Carrots, both looking neat for a considerable time. Strawberries again are admirable, evergreen, close-growing and pleasing both in the spring for their masses of welcome blossom, and in the summer for their grateful berry, to say nothing of the facility with which they can be garnered in. I fear with many folk various plants, fruits or vegetables prove year after year practically an annual failure. The fact is, most kinds must be grown right out in the open, and notably so the Strawberry among fruits, the Cauliflower and Parsnip among vegetables, and the Rose among flowers. I merely give these as examples, for indeed it is unfortunately quite the exception for any cultivated plant of either kind to do itself justice where in the least shaded. Where, therefore, one's garden has too much of this commodity, it is well to confine one's energies to those fewer products that will thrive under these unfavourable circumstances. Thus the Raspberry and Gooseberry will do well even when grown among bushes or under trees, while several kinds of the Cabbage tribe do very fairly in confined or shady quarters. Neither do the Pæony, Sweet William, Pansy, or Forget-me-not seem to object to this style of living.

PROTECTION.—This is a matter which is really a paramount one. It is no use whatever growing your stuff if season after season the voracious fowls of the air are to carry off two-thirds of the produce. The slugs, snails, and wireworm are bad enough at the initial stage (soot is highly effective against these and other insect pests), but it is far worse to be within reach of your goal, so to speak, and yet have your rows of succulent Peas, reddening Straw-

berries, or maturing Gooseberries, staring you in the face, if these unspeakable little beggars are to rob you right and left of the almost won result of your labours just at the winning-post. No; you must have netting—fish netting, or wire netting, or both, and plenty of it. You must buy at the beginning of the season, and lay in a good supply, then immediately your crops are coming to maturity cover them so that not a foot square is unguarded, or as sure as fate the wary blackbird or other

FIG. 64.—DAHLIA PRESIDENT VIGER: CRIMSON, CENTRE FLORETS WHITE.

local pest will get in. Wire netting, of course, though costing more, lasts a very long time; fish or tanned netting costs much less, and, if taken care of and kept dry when not in actual use, is durable for a very fair period of usefulness. I have no great faith in the time-honoured scarecrow; the birds are not such fools as some of us seem to imagine, but occasionally firing off a gun, say two or three times a day, may, I think, save a good deal of fruit. I am quite sure I preserved a good many bushels of Walnuts a year ago by every morning, at about six A.M., and again once or twice later during the morning, blazing up among the branches where the rooks are in the habit of perching and flying backwards and forwards by scores between the trees and the grassland, where I believe it to be the fact that they bury the nut as a provision for their winter provender.

BINDWEED.—This dreadful garden curse, with other deep-rooting perennials, should be drastically treated once and for all. It is no use wasting time year after year getting rid of what you can when the ground is ordinarily dug. The proper way is to make up your mind, put your shoulder to it, and go down as deep as you can for all you are worth, and eradicate it. It will take a long time, perhaps, and be a stiff job, but will pay in the end, for in this way it can be permanently destroyed.

UNMATURED GREEN FRUIT.—And now a last word on what in many households is entirely wasted. The little green unripe Gooseberry is, of course, so well recognised as being an almost invaluable adjunct of the garden that my remark applies not to it. But there are others whose utility is not so generally known. For instance, Grape thinnings make capital tarts and preserve, though it is well, if possible, to work out the stones, just as a good cook does from her raisins. The Apricot too, when growing in thick clusters and crowding itself out, has in such cases to undergo a salutary sorting out. These, again if of a fair size, become astonishingly succulent and juicy when thoroughly stewed. There are two vegetables which find a place pretty well in most gardens nowadays in the shape of the Vegetable-Marrow and the Tomato. Both, where superabundant, can be utilised and made into excellent jam by being flavoured slightly with ginger. The former is rather inclined to crystallise during the winter, but is perhaps none the worse for that; while as for the latter, the conserve can be produced either from the ripe fruits or from the unripe still green produce, however small; indeed, it is a good economical means of saving the waste that would otherwise occur at the end of the season from the remaining fruit that is unable to further mature. The subject of aiding cultivation in one way or another is so comprehensive that many other matters must be left entirely untouched, the above perchance sufficing to draw attention to the few points treated of and coming within the ken or reach of the average mortal. *J. A. Carnegie-Cheales.*

"COLLERETTE" DAHLIA.

OUR figure (fig. 64) was taken from a specimen exhibited by Messrs. Cannell & Sons at the recent Dahlia show at the Drill Hall, Westminster, and is of special interest as being one of the forerunners of a new type of this popular autumn flower. The variety, known as President Viger, was raised in France two or three years ago. It will be seen that the florets which form a circle around the disc are intermediate in form, as in position, between the ordinary florets of the ray and those of the disc. What is still more striking is the fact that whilst the disc florets in this case are deep crimson, and the central florets yellow, the intermediate ones are whitish, and show up well against the crimson. President Viger is not the only one of this character, but is the representative of a new race of the same form essentially but differing in colour.

NEW OR NOTEWORTHY PLANTS.

MESEMBRYANTHEMUM MAHONI, *N. E. Brown (n. sp.).*

IN South Africa the genus Mesembryanthemum ranks second only to Erica in the number of species it contains; and possibly, if all the species of both genera were known, Mesembryanthemum would stand first, for being troublesome to dry and difficult to determine when they are dried, the members of this genus have been much neglected by collectors. However, at present over 300 species are known from South Africa, and yet only about half-a-dozen species have hitherto been collected in tropical Africa, so that the genus seems to be rather restricted in its distribution to the southern portion of the continent, if we are to judge by our present knowledge of it. The species described below adds one more to the number from tropical Africa, having been sent to Kew from Melsetter, in southern Rhodesia, by Mr. J. Mahon in 1900. It is rather a pretty species, quite dwarf, producing its bright violet-purple flowers very freely.

Perennial, about 6 ins. high, erect, branching, woody at the base, with the young branches, leaves, peduncles, and calyx densely covered with minute crystalline papillæ. Leaves distant and spreading on the main stems, crowded and suberect on the short axillary shoots, scarcely connate at the base, 1 to 1⅜ in. long, 1¼ to 1½ lin. broad, and nearly as thick, subterete, channelled down the upper side, very convex on the lower side, subacute, green, not at all glaucous. Cymes terminal, dichotomously branched, several-flowered, with moderately divergent branches, bracteate with reduced leaves. Pedicels 4 to 6 lin. long, those of the unfertilised flowers separating from the withered flower and becoming hardened, resembling slender spines, but are not pungent. Calyx-tube very short, and broadly obconic; lobes 1½ to 3 lin. long, recurved or reflexed, the two shorter with a broad white membranous border; the three longer, subterete, acute. Petals in two series, bright violet-purple; outer series 5 to 6 lin. long, ⅜ to ½ lin. broad, linear, obtuse, entire; inner series 3 to 4 lin. long, ¼ lin. broad, linear, acute. Stamens collected in a bunch, erect, white, the outer ones without anthers, the innermost with a tuft of hairs just above the middle of the filaments. Stigmas subulate, exceedingly acute, 1½ to 1⅔ lin. long. Fruit flattened, very much broader than long. *N. E. Brown.*

ROMNEYA TRICHOCALYX.*

I have received from Mr. Hiatt C. Baker, Oaklands, Almondsbury, Gloucestershire, flowers of this species which, from a garden point of view at any rate, is abundantly distinct from the plant I have seen always cultivated under the name of R. Coulteri. R. trichocalyx differs from R. Coulteri in its setose calyx, in its thinner, weaker, suffruticose, laxly spreading, more leafy stems, and in its pinnately three to five parted leaves which closely surround the bud; the flowers too are more crape-like in texture. From a purely ornamental standpoint R. Coulteri, with its thicker, taller stems forming close clumps, and its thicker, less divided, dark green leaves, is the better plant of the two. Native Californian specimens of R. trichocalyx show flowers quite as large as those of R. Coulteri, although as a rule those of the latter are larger. *Geo. Nicholson.*

* Eastwood in *Proceedings of the California Academy of Sciences, Third Series, Botany*, vol. i., No. 3, 1898, p. 133, plate xi., fig. 4c.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM ORION VAR. MRS. ARTHUR WELLS.

THE original variety of this stately cross between C. × selligerum majus and C. Rothschildianum, and in which the former was the seed parent, was shown by Messrs. Sander, of St. Albans, at the Royal Horticultural Society on July 26, 1898; the ground colour of the petals and upper sepal being cream-white, on which were chocolate-coloured markings. The reverse cross, with C. Rothschildianum as the seed bearer, is now in flower in the collection of Francis Wellesley, Esq., Westfield, Woking (gr., Mr. Gilbert), and proves to be one of the finest and most striking in appearance of any of its class. The flower, which exhibits much of the rich dark colouring of C. Rothschildianum, yet shows distinct traces of both C. philippinense and C. barbatum, which were the parents of C. × selligerum majus. The dorsal sepal is 2½ inches across, of a shining light greenish-yellow, with a rose-tinted white margin, and some twenty blackish-purple lines. Lower sepal smaller, whitish, with purple-brown lines. Petals 5 inches long, and ¾ inch wide at the widest part; emerald green, changing to yellow, with a rose tint towards the tips, and bearing large blackish-purple blotches on the basal two-thirds. Lip large, 3 inches in length, whitish, veined and tinged with brownish-rose. Staminode yellowish, with rose-coloured hair-like papillæ on the surface. The marginal blotches and margins of the petals are decorated with shaggy, blackish hairs, and the whole flower distinct in spite of the strong family likeness between all the hybrids of C. Rothschildianum of this class. C. × Orion was the name also given to a cross between C. concolor and C. insigne shown in 1899.

FIG. 65.—CELMISIA CORIACEA, GLASNEVIN.

CELMISIA CORIACEA.

CELMISIA is a genus of New Zealand composites, bearing flowers of a very attractive appearance, some of which have already been illustrated in our columns. The representation of C. coriacea as growing at Glasnevin, fig. 65, is reproduced from a photograph by Mr. Leo Varmar. The leaves are covered with a cottony clothing, very dense on the lower surface; the flower heads measure from 4—8 cent. (say 1½ to 3 inches), and bear numerous white ray florets surrounding a central yellow disc. The Celmisias are mostly hardy, and form excellent plants for the rockery; but they are well worth the shelter of a greenhouse when there is any doubt as to their hardihood.

DIFFERENCES IN PEOPLE'S SENSE OF TASTE.

MR. CHAS. PEARSON'S comments on the Strawberry-Grape in the *Gardeners' Chronicle* of August 23, p. 139, are interesting, especially regarding the cross made between that Grape and, as I am informed, the Royal Muscadine; but perhaps he may not have remembered that people's palates differ, it may be, as much as their features. We know something about the history of the Tomato in this country. Before I went out to India in 1857, I saw a small basket of these pretty things in a London fruiterer's window; but they were looked upon more as a curiosity than things fit to eat. But what is the position of the Tomato now in England? At Tarring, to give a single illustration, a market-gardener this year planted out 2 acres with Tomatos. Unfortunately, outside Tomatos are nowhere this summer—if it can be called a summer—and the owner probably will not recover a penny of his outlay.

It is not only the sense of taste that differs in different persons, but also the senses of smell and sight. There is no law in the sense of taste

such as the universal law of gravitation. It is a purely personal attribute. For instance, some like plenty of sugar in their tea, others look upon sugar in tea as a nauseous addition. I have observed many differences in the palates of people with regard to the flavour and scent of the Strawberry-Grape.

Here are a few examples. I gave a bunch to a gentleman who visited me, and asked him to taste them. He disliked them, and when I took him into the Vine-house, he said the odour made him feel almost sick! Another gentleman thought this Grape delicious, and was delighted to get a plant; he took the bunch home to his wife in Chichester as a delicacy. A lady thought this Grape unique, and accepted a plant for a friend. Another gentleman wanted two plants, one for himself and one for a friend.

A child liked these Grapes very much and wanted more, and so on; some liked them, others did not care for them, and a few disliked them. Others said they would prefer Grapes with the flavour of Grapes, and Strawberries with the flavour of Strawberries. And in one case it is related that the taster regarded them as "scented slugs": it is not, however, related whether the person had ever eaten a slug.

It is evident to me that Mr. Chas. Pearson's father must have thought highly of this Grape, since he undertook to unite its flavour with that of another Grape by crossing. Personally, I like it very much, and have some of it every morning at breakfast; and I know several who think it delicious. Its descendant, with a similar flavour, Ferdinand de Lesseps, is grown "by a few connoisseurs"—that is a very significant word—at Gunnersbury Park, Maidstone, and elsewhere; and it should be noted that the latter received a First-class Certificate from the Royal Horticultural Society in 1870.

It is very curious to note what fascination large size exercises on people's brain convolutions. Onions, for instance, must be of the size of a child's head; a Cabbage must be a Drumhead Cabbage; Carrots and Parsnips must be 2 feet long and proportionately thick; a Chrysanthemum must be of the size of a map; a Gros Colman Grape is demanded because it has the largest berry, although it is tasteless and has a very thick skin. A fruiterer told me he could sell any amount of this tasteless Grape, while he did not care to purchase Black Hamburgh. Another tasteless Grape is the Black Alicante; but people continue to grow it because of its beautiful bloom. Another fruiterer told me he never purchases Black Alicante; he considers it a watery Grape. Customers are induced to purchase it on account of its good looks, but never ask for it again. The Dutch Sweetwater is preferable to these two.

Then Mr. Pearson notes that when they grew the Strawberry-Grape at Chilwell "it could not be sold or given away." I have not tried to sell it, but I have had no difficulty in giving it away!

Will it be believed that a friend of mine, a farmer near Lewes, this year grew a lot of Artichokes, and in due course took a load of them to Brighton; he could not sell them, and had to take them back to his home, and eat them up himself as well as he could! Yet in France the Artichoke is one of the paying crops.

I weighed one of the largest bunches of my Strawberry-Grapes. It weighed a little over half a pound—that is, about two bunches to the pound, a very convenient size for ordinary purchasers; while at the Shrewsbury show there were Black Alicante bunches weighing five and seven pounds each.

What is the use of such large bunches, except for prize-winning, and for showing what can be done? Is there any ordinary person that would purchase five or seven pounds of Grapes at a time?

Then the labour of thinning such large bunches is great and tedious. The Strawberry-Grapes require no thinning; they do not crack or shank, and do not mildew, even in such a season as this. These are not despicable qualities; and this fine Grape would seem to have a future for the palate of the multitude. The objection to its smallness of bunch seems trivial and absurd. Why should it remain restricted to "a few connoisseurs"?

Then its perfume is very agreeable, although some may not like it. Many do not like the perfume of Hyacinths, Lilies, and other strong-scented flowers.

As I began with the differences of peoples' sense of taste, I may perhaps be allowed to quote the case of the famous Durio zibethinus of the Malay Archipelago: "By those who have overcome its civet odour and turpentine flavour, it is ranked among the most delicious of Indian fruit."

To conclude, I still think that horticulture might benefit greatly by someone with a good bit of life before him taking up the crossing of the fine-flavoured and delicate-scented Strawberry-Grape with that tasteless Gros Colman. It is an operation that requires skill, time, and space, as hundreds of seedlings must be raised with the chance of a "trump" turning up. It would appear the function of wealthy horticulturists to bring this about, and evolve a Grape with size, flavour, and scent. *E. Bonavia, M.D., Worthing, Sussex.*

TREES AND SHRUBS.

PYRUS SARGENTI.

UNDER the name of Pyrus or Cydonia pygmæa, I received, about two years ago, from an Irish nursery a little Quince, which was said not to exceed 2½ or 3 feet in height, and was thus to be prized for rockwork. It flowered here for the first time in 1901, but as it had not become established, the flowers were less numerous than in 1902. This year, however, the plant has been wonderfully floriferous, and for a considerable distance along its short branches these were literally crowded with flowers, about the size of those of P. Maulei, and resembling them in colour.

The plant has kept true to its description as regards stature, for the branches are hardly more than a couple of feet high. The name of P. pygmæa, under which I received it, is quite descriptive of the plant; but I was always doubtful about it, and I have been looking out for another name for this choice little shrub. I am now satisfied, however, that it is the same plant as that described by Messrs. Lemoine of Nancy as P. Sargenti, which was introduced from Japan by Professor Sargent, and has been cultivated in the Arnold Arboretum. It is mentioned in Appendix II. of the *Kew Bulletin* for 1900.

While Pyrus Sargenti flowers most profusely, and in this respect excited the wonder and admiration of a number who saw it in bloom, the season has not been a favourable one for the fruiting of these Japanese Quinces, and there is a complete absence of fruit on all in my garden, with the exception of one solitary specimen on P. Sargenti. This is not nearly ripe as this note is being written, in the beginning of September, but it is of interest to know of its fruiting in such an untoward season for such things, and one hopes that there will be more another year.

My own opinion is that this Pyrus cannot be considered as anything but an excessively dwarf variety of P. Maulei, but it is sufficiently distinct for all garden purposes, and is also one of the plants which is admirably adapted for the ornamentation of the rock garden. *S. Arnott, Carsethorn, by Dumfries, N.B.*

FRUIT AT BARHAM COURT GARDENS.

APPLES.—All varieties flowered remarkably well this season, but from various reasons, including frost and continued cold, also a severe attack of aphis, most of the blossom dropped or, as we say, "run off." I noticed that although the whole of my trees bloomed well, there are crops only upon those that failed last season. Can the reason be that the blooms upon these trees were stronger than the others, although this was imperceptible to me at the time?

Many orchards and plantations hereabouts (Maidstone) are almost a failure, especially where the cultivation is not attended to carefully. Good cultivators are, however, reaping a fine harvest. Prices are good. Worcester Pearmain, properly graded, is making 10*s.* per sieve, and Ecklinvilles, 5*s.* 9*d.* These prices only refer to clean samples, although the fruit is much smaller than usual all round.

Amongst other good varieties that hardly ever fail here are Grenadier, Lane's Prince Albert, and Newton Wonder—a really grand cooking Apple, a late keeper, and good strong grower. Another fine Apple is Golden Noble; and Golden Spire is always good. The last-named variety, being an upright grower, might profitably be planted 6 to 8 feet apart. Stirling Castle and Tower of Glamis are both desirable varieties. Lord Derby, though ugly, is in greater demand than Warner's King, the latter being a bad cooker, but the former excellent for making tarts. Lord Suffield is somewhat of a failure with me this season, owing to mildew. Still, I shall continue to grow it, as perhaps next year it may be really good. Hormead's Pearmain deserves to be more commonly grown.

Most of the foregoing varieties have good conical-shaped fruits, but amongst the flatter kinds I still like Cox's Pomona better than the Queens. With me it comes a better colour, and hangs better. I should like to know how other readers of the *Gardeners' Chronicle* succeed with Bismarck. With me it is almost a failure, and were it not necessary to have it in a collection, I should have worked the trees with another sort years ago. It is a very poor cropper here, and then only on the young growths; I cannot get it to crop on the spurs. Stone's or Loddington is a regular cropper and good cooker. There are many other good varieties, but those named are the best I grow for general purposes.

Amongst dessert kinds, of course, Cox's Orange Pippin takes the first place, but the crop is poor and the fruits rather small; next I place American Mother, which is rich in flavour and a fair cropper; Worcester Pearmain I have previously mentioned. It is more of a market kind than one for a private garden. Irish Peach, Beauty of Bath, Mr. Gladstone, and Lady Sudeley have been good, and are excellent as early kinds. Irish Peach needs no pruning, with the exception of removing whole branches occasionally to keep the tree open. This sort crops on the points of last year's growth. Other good kinds are Mabbott's Pearmain, Scarlet Pearmain, and Calville Rouge précoce. The two last are really

pretty fruits and of fair quality. Adam's Pearmain succeeds well here, and is one of our best flavoured kinds; Allen's Everlasting, a flat-shaped fruit of exceptionally good flavour, should be allowed to hang right into November if possible, otherwise it will shrivel. Lord Burghley is an excellent late variety of good flavour, and forms a nice garden tree. Wealthy is one of the best mid-season sorts I grow; the fruits are of beautiful appearance, soft flesh, with quite a nice flavour. This variety must be thinned slightly if at all, otherwise the fruits will be too large for the dessert table.

At another time I will give you my experience with some of the newer varieties I am growing.

PEARS.

Almost the same remarks may be made in reference to Pears as to Apples in respect to the promise of a crop, and there are many failures. Williams' Bon Chrétien, on very old and tall standard trees, are literally breaking down with the weight of fruit, but these are much smaller in size than usual, as also are most varieties of Pears. Doyenné du Comice are plentiful and good, but very small. Durondeau should be grown more commonly; it makes an excellent tree, and the fruits are attractive in appearance and of good flavour. Beurré d'Amanlis is a really good and useful Pear, and in spite of its green appearance when ripe I would not be without it. Beurré superfin should be largely grown; it is thought by some to be the best flavoured Pear extant. Beurré Hardy, as standards, bushes, or on walls, is always good. Clapp's Favourite is carrying a very heavy crop, and is a good and useful Pear. Conference still maintains its position as an excellent fruit and a good cropper. Emile d'Heyst with me is hardly second to Doyenné du Comice, being a grand Pear in every way. Josephine de Malines is very hardy, and of good flavour. Marguerite Marrillat is very large, has grand flavour and good appearance; it is an excellent cropper and grower. Nouvelle Fulvie, a very desirable sort, requires a wall and very copious supplies of water to mature it properly; the fruits should be allowed to hang as long as possible, otherwise they will shrivel. Louise Bonne of Jersey still holds its own as an excellent flavoured Pear. Thompson's is cropping well, and is one of the best flavoured. Triomphe de Vienne has very rich flavour, and is a good cropper.

The above varieties are enumerated from notes taken as I go round. There are many other good old varieties and some newer ones, which, if you wish, I will mention at some other time. [Please do so. ED.]

PLUMS, &C.

These are somewhat scarce. Amongst my best are Rivers' Early Prolific, Washington, Pond's Seedling, Victoria, Bryanston Gage, Jefferson, Reine Claude de Bavay, and Belgian Purple. Damsons in some plantations are very plentiful. I have an enormous crop.

Cob-nuts will be much more plentiful than at one time was thought probable; for although the bushes suffered from the caterpillar, the leaves being quite eaten away, nevertheless nuts have developed at the point of the growth. It appears that the caterpillar does not injure the points whence the nuts appear. A farmer near to me, who has nearly 30 acres of Cobs, and whose bushes were literally perforated by the caterpillar, said to me some time ago: "I have had them like this before. The nuts will come all right." And so they have done. I shall be anxious to see the result next year.

Potatos are a very heavy crop, but disease is spreading rapidly. *G. Woodward, Barham Court Estate Gardens, near Maidstone, Aug.* 29.

THE ROSE SEASON OF 1902.

IT cannot be said that the Rose season of this year, with the exception of a few genial inspirations on the part of Nature, has been entirely favourable to the creation and evolution of the Queen of flowers; yet the Roses which for many months have adorned my own garden, have been wonderfully fine. Doubtless we have had occasionally high winds and desolating floods, which for a short period have made havoc of our gardens and rosaries, and swept our precious flowers, almost without warning and certainly without mercy, into the regions of destruction; but "hope springs eternal in the human breast"; and thanks to the recuperative powers of our Roses and their perpetual habit, it was not long ere they looked as charming as before.

The first varieties to unfold their floral beauty this season were, Margaret Dickson, Clio, and Clara Watson, grown as climbers on a sunny west wall. I find that for climbing purposes the three redoubtable Roses I have just mentioned are admirably adapted; in such a situation they have reached without difficulty a height of 10 feet. They are highly decorative, exceedingly floriferous, and produce magnificent blooms. It is a characteristic of Clio to produce its flesh-coloured, richly odorous flowers in large clusters, after the style of certain Noisettes; though I have never seen a Rose with this special attribute half so impressive. Margaret Dickson, on the other hand, produces its flowers individually, but every one is perfectly formed, and quite superb. Clara Watson (supposed to have been raised by the late Mr. Henry Bennet, though it owes its introduction and popularity to Mr. George Prince) is more than worthy, by reason of its marvellous formation and queenly beauty, to rank with any English or Irish Rose, and that is saying much. These, with Caroline Testout, La France, and Viscountess Folkestone, have been the grandest Roses in my garden this year. Very conspicuous have also been certain of the Noisettes and Teas, especially Bouquet d'Or, generally regarded as an exquisite derivative from Gloire de Dijon, but deeper in colour and of finer form; William Allen Richardson and L'Idéal, growing like brother and sister side by side; the venerable Lamarque, ancestor of Maréchal Niel; the charmingly-tinted Rubens, which owns a highly artistic name; Madame Alfred Carrière, a hybrid Noisette of much sweetness and fascination; and Madame Pierre Cochet, loveliest when half blown. Such familiar varieties as Catherine Mermet, Madame de Watteville, Cleopatra, Princess Vera, and Princess of Wales, which demand a dry and sunny season, and are easily affected by rain, were not so successful as those already characterised. They are "fine weather varieties," and should, for the sake of their cultivator's long-suffering patience, be regarded as such. What I have already described in these columns as "the Martyrdom of Gardening" is largely created by such Roses as these. On the other hand, reliable varieties like the beautiful and productive Papa Gontier, with its homely, domestic name; Madame Pernet Ducher, Madame Jules Grolez, and Madame Cadeau Ramey, all of French origin, have flowered profusely; so also have Mr. Wm. Paul's Enchantress and Aurora, of which the former is a lovely pale buff hybrid between the Chinas and the Teas. Both of these may be regarded as abiding acquisitions.

The most successful of the Hybrid Perpetuals this season have been Duke of Edinburgh, though much finer and larger last year; A. K. Williams, whose first flowers were mostly abortive, though subsequently, as usual with this luminous variety, they greatly improved; Mr. Cranston's Crimson Bedder, which came very early; and the gentle Marie Bauman, which, with modest aspect, came very late; Horace Vernet and Charles Lefebvre (two dark crimson Roses, which I cannot but regard as very closely allied), both of which occasionally suffered greatly from atmospheric visitations of an unwelcome description; and Lady Helen Stewart, an Irish beauty, which did not appear to feel them quite so much.

Two highly interesting derivatives from that superbly beautiful Rose, Susanne Marie Rodocanachi, have flowered for the first time in my garden this year, viz., Rosslyn and Marie Corelli. Both of these are attractive varieties, of considerably paler complexion than the parent Rose, but of considerably less value for garden decoration. *David R. Williamson.*

LEAF MOULD.

ORCHIDS, having an objection to lime, are naturally best grown in leaf mould deprived of lime. This is certainly the reason why these plants thrive so well in this particular soil, that has been so much advocated of late. The aërial roots find in this compost the oxygen of which they are in need, and the moisture which they can easily absorb. This explains why epiphytes, such as Oncidiums, now thrive better and much longer than formerly. At one time these Orchids did not live more than two or three years after their introduction into cultivation; now, owing to the use of leaf-mould, Oncidiums are found to be as hardy as Cattleyas, and we have for the last ten years seen a collection of fine specimens of these flowering every year under glass. The promoter of this system of cultivation, M. Delanghe-Vervaene, of Brussels, finds that the stems of O. varicosum Rogersi, O. Marshallianum, and others, attain to a length of 6 feet, and are covered with many flowers. One important material used in Belgium is that known as garden-mould: it is the best kind of leaf-mould, of which there are many kinds; that composed principally of Oak-leaves being preferred to all others.

For potting, leaf-mould must not be too much exhausted, and rather large lumps may be used. It cannot be sifted, but should be very carefully picked over to take out all seeds, fungi, grass stolons, &c.; in a word, there must be left little but pure Oak-leaf mould.

The question of drainage is to be considered. I believe that for Oncidiums and Odontoglossums more drainage should be used than for Cattleyas and Cypripediums. However, these plants also need a few potsherds.

In potting Orchids, steps must be taken to keep off slugs—their great pest. Therefore the pots should first be thoroughly washed with hot water, in which a little petroleum or a little carbolic acid is stirred up, and the drainage materials and leaf-mould should be sterilised by subjecting them to boiling water; the leaf-mould, after being brought to boiling-point, can afterwards be put into the oven for a little while, so as to get it friable and soft to the touch. This half-dried humus can be easily used, but if too damp the results will not be satisfactory.

Potting must be so effected that the plant rests on the earth, and the surface of the soil must be covered with good large and living sphagnum. The sphagnum must be carefully inspected, and all eggs and larva there may be seen in it be removed. Too much care cannot be taken when pursuing this system of cultivation. *Ad. Van den Heede, Lille.*

CANADA.

FRUIT CROPS IN CANADA.

THE following is a summary of the latest reports concerning the condition of the various fruit crops in Ontario:—

Apples.—These promised to yield very well, though reports differ greatly as to the present condition and prospect of harvest. The fruit is badly spotted in some cases, but there is an absence of insect pests. The yield, owing to wet and cold, will be much decreased in volume, though earlier promise was very different. Much of the fruit has dropped off the trees. Winter Apples are likely to be scarce, the early varieties much more plentiful.

Plums.—Reports as to yield are generally unfavourable; the crop is light in most sections, owing to the injury caused by spring frosts and the late rains; while where spraying has been neglected the ravages of the curculio have been very destructive. Rot has damaged some of the fruit.

Peaches generally have done well, and there will be an abundant yield.

Pears promise satisfactory returns in most neighbourhoods.

Cherries.—The reports concerning these are not so encouraging; in many places the crop was light—one cause assigned being the prevalence of the black-rust, especially in the western counties.

Grapes have sustained considerable injury from frost, and the wet weather has in some localities resulted in mildew, but the yield bids fair to be an average one.

Berries have been a large crop in nearly all parts of the province, but rainy weather has considerably interfered with packing and marketing them.

MADEIRA.

AMONGST the many trees in my garden which excite the admiration of visitors, perhaps the Pandanus odoratissimus is worthy of special mention. I enclose two photographs, the one marked fig. 67 is the male tree, and is a very fine and regular specimen, which cannot be less than fifty years old; the other (fig. 66) is the female or cone-bearing tree, and probably is not much younger, but at some time or other it has lost the leading branch or eye, and consequently has not made the same progress.

My garden is in three terraces, the female tree being on the middle terrace, whilst the male tree is in the lower garden. They are about 50 yards apart, and although the male bears a quantity of flowers two or three times during the year, the cones of the former have never proved fertile. Last year I selected the finest cone and dusted it well with a (male) flower at the time when it gave off plenty of pollen, and afterwards I tied it on to the cone. The result has been most satisfactory. I sowed the seeds in boxes, and in a few weeks after I was gratified to find that several had germinated, and they are now making good growth.

I have another specimen of the male tree not less fine than the one illustrated, but as it stands surrounded on three sides by other trees it does not show up so well. The aërial roots of the female tree are not seen in the photograph, being surrounded by plants, but they come out well in that of the male tree (fig. 67). Standing as it does on the lawn just off the corner of the tennis court it is the admiration of all visitors; the height can be judged by comparison with the gardener standing under it, whose stature is not less than 5 feet 8 inches.

I am doing my best to introduce all kinds of tropical trees and plants from all parts of the world, and I have met with very fair success, some being much more difficult to acclimatise than others.

To Tree Ferns especially I have given great attention, and if you think it would interest your readers I should be glad to give you some account of my Tree Fern grove and its contents, with photographs. [Please do. ED.] They seem to get on well in this lovely climate, and in a few years I expect to have a unique collection of them growing out in the open air. I am also introducing rare Palms and Cycads, and hope to do well with many of them also. *Chas. O. L. Power, Quinta do Deao Island of Madeira.*

FIG. 66.—CONE-BEARING TREE OF PANDANUS ODORATISSIMUS, IN THE GARDEN OF C. O. L. POWER, ESQ., MADEIRA.

HERBACEOUS BORDER.

HIERACIUM BORNMULLERI.

UNDER this name I received this spring from an esteemed and careful correspondent a Hieracium named H. Bornmulleri. I cannot find any trace of the name in the *Index Kewensis* [it may have been published at a later date than that work], but, with a genus so numerous and so puzzling, this is not to be wondered at. I have not met with a plant of the genus which so closely resembles it as to make one fear that it has been wrongly named. It promises, however, to make such a good garden plant that one thinks it worthy of a note of remark, so as to bring it before those interested in hardy plants. It is one which I should rank in the same category as H. villosum for garden value, though it has not such white foliage as that pretty member of a somewhat despised genus. It has, on the other hand, larger and brighter yellow flowers, and thicker and more woolly leaves. Its ability to hold its flowers erect without any support is also a considerable advantage for those whose gardens are in positions exposed to strong winds. Here it grows about a foot high, and produces handsome flowers of a bright yellow. It lasts a long time in bloom, and from its appearance I entertain no fears regarding its hardiness. It is presumably an Asiatic species. *S. Arnott.*

WHAT IS THE LUCOMBE OAK?

THIS is a question which seems ridiculous, seeing that the history of the so-called Lucombe Oak has been given in full by Loudon many years ago, and quoted and requoted by every writer on trees in England since. But I am inclined to think that the original Lucombe Oak is something quite different, and not a hybrid between the Turkey and the Cork Oak, as supposed. My reasons are as follows: On visiting Col. Tremayne's beautiful place at Carclew, near Falmouth, lately, I saw the Oaks, which were raised by Lucombe, who was gardener there in the middle of the eighteenth century, and which are very tall, straight-growing trees with clean stems, 40 to 50 feet high, without a branch, all bearing signs, in the shape of a distinct ring on the bark close to the ground, of having been grafted, though I have never seen any grafted trees of such size or age anywhere else.

Col. Tremayne showed me a note-book kept by Sir Charles Lemon, the former owner of Carclew, in which he had copied a note from Evelyn's *Silva* (cf. Hunter's edition, published at York in 1776, p. 76) which reads as follows:—

"Besides these seventeen species of Oaks enumerated by Mr. Miller, there is another, described under the name of the Lucombe or Devonshire Oak. Of this new kind there is a particular account given in the sixty-second volume of the *Philosophical Transactions*, in a letter from Mr. Holwell to Mr. Campbel. The following extract contains all we yet know of this most surprising species:

"'About seven years past, Mr. Lucombe sowed a parcel of acorns, saved from a tree of his own growth, of the Iron or Wainscot species; when they came up, he observed one amongst them that kept his leaves throughout the winter. Struck with the phenomenon, he cherished and paid particular attention to it, and propagated, by grafting, some thousands from it, which I had the pleasure of seeing, eight days ago, in high flourishing beauty and verdure, notwithstanding the severity of the winter. Its growth is straight and handsome as a Fir, its leaves evergreen, and the wood is thought, by the best judges, in hardness and strength to exceed all other Oak. He makes but one shoot in the year—viz. in May, and continues growing without interruption; whereas other Oaks shoot twice—viz. in May and August; but the peculiar and inestimable part of its character is the amazing quickness of its growth, which, I imagine, may be attributed (in some degree at least) to its making but one shoot in the year; for I believe that all trees that shoot twice are for some time at a stand before they make the second. I had the curiosity to take the dimensions of the parent tree (seven years old), and some of the grafts: the first measured 21 feet high and full 20 inches in the girth; a graft of four years old, 16 feet high and full 14 inches in the girth. The first he grafted is six years old, and has out-shot its parent 2 feet in height. The parent tree seems to promise his acorns soon, as he blossoms and forms his footstalk strong, and the cup upon the footstalk with the appearance of the acorn, which, with a little more age, will swell to perfection. This Oak is distinguished in this country by the title of the Lucombe Oak; his shoots in general are from 4 feet to 5 feet every year, so that he will, in the space of thirty or forty years, outgrow in altitude and girth the common Oak at a hundred. In two or three days I will forward to you in a parcel a branch which I cut off from the original tree, and another from the graft of four years old, also a dead branch of the Iron or Wainscot Oak, just to show that, from the similarity of the leaves, it is a descendant from that species, although differing from it in every other particular. I send you also, by the Exeter stage, a specimen of the wood. I have a walking-pole full 5 feet long, a side-shoot from one of the grafts only one year and a half old. Several gentlemen round this neighbourhood, and in the adjoining counties of Cornwall and Somerset, have planted them, and they are found to flourish in all soils."—I am, &c., ——, *Exeter, February* 24, 1772.'"

FIG. 67.—PANDANUS ODORATISSIMUS, IN THE GARDENS OF O. L. POWER, ESQ., MADEIRA. (SEE P. 194.)

These trees must have been planted at Carclew by Lucombe himself, and were considered by Sir Charles Lemon as the Lucombe Oaks. He gives the dimensions of one which is still growing in a sheltered position between the house and garden as follows:—In 1823: height, 74 feet 6 inches; girth at 4 feet, 6 feet 11 inches; at 16 feet, 6 feet 2 inches; at 48 feet, 3 feet 2 inches. In 1851: girth at 4 feet, 9 feet 1 inch. In 1853: girth at 4 feet, 9 feet 8 inches. In 1902, roughly measured, it appears to be about 100 feet high, with a clean stem of about 40 feet, which at breast height is about 13 feet in circumference.

There are four other trees growing close together in the park on the other side of the house, which are of the same character, and

look about 100 feet high, with clean stems of about 50 feet, 11 to 12 feet in circumference. None of them show any signs of the corky bark of Quercus Suber, and they are much more like Turkey Oaks at this time of year. Has anyone ever seen a hybrid Lucombe Oak approaching these in height, and can anyone say from actual knowledge whether the timber of the Lucombe Oak is as described? There must be trees of the same origin still living in other places, and, by inquiry among woodmen, carpenters, and timber merchants, it might be possible to find out the truth of what appears a remarkable statement as to the timber. Also it is important to know whether grafted Oaks usually, if ever, attain dimensions greater than upon their own roots, for I saw no such large or clean Oaks as these at Carclew, where the soil is not what in the Midlands would be called a good Oak soil.

On examining the large Lucombe Oak at Kew Gardens, which is presumably one of the original ones, in company with Sir W. Thiselton-Dyer and Mr. Bean, they thought it showed little, if any, trace of the Cork Oak in its bark or foliage, but thought it might possibly be a hybrid between the Turkey Oak and the Ilex. But if the seedling from which the graft was originally taken was raised from the "Iron or Wainscot Oak," and has timber as stated, it seems more likely that there are two distinct trees known under the name of Lucombe Oak, and that Lucombe, after he became a nurseryman, propagated and sold a tree of different origin from the ones now growing at Carclew.

Sir T. D. Acland, Bt., of Killerton, Exeter, writes me that neither of his stewards at Killerton and Holmicote has any opinion of the timber of the Lucombe Oak, which, as they express it, "sleeps away." Colonel Tremayne sends me a small plank of the wood, which I can submit to anyone experienced in testing timber. *H. J. Elwes, Colesborne, Cheltenham.*

CULTURAL MEMORANDA.

CYCLAMEN.

CYCLAMEN LATIFOLIUM (PERSICUM).—Seed of Cyclamen should be sown this month, in well-drained pans filled with light, rich, sifted soil, covering with a little of the same, making this moderately firm before and after sowing and covering the seed, affording water through a fine rose to settle and moisten the soil. In order to succeed in growing this plant, it is necessary to grow the plants on from the seedling stage in a brisk, moist heat, giving plenty of water at the roots and overhead to keep the foliage clean, and at the same time admitting sufficient fresh air to the frame or pit to insure sturdily-grown plants; shifting into larger pots as the roots push through the soil, until placed in their flowering sizes—4½-in. and 6-in. pots. After flowering, the plants should be rested for two or three months by placing them in a cool frame, and partly withholding water from the roots—that is, by allowing the soil to get pretty dry before applying water. After this interval of rest, the soil should be shaken off the roots, and then the plants should be repotted in clean, properly crocked pots, using a mixture consisting of three parts good fibrous loam and one of sweet leaf-mould (free from worms) and pulverised cow-manure, with a good dash of sharp sand added, the whole being well mixed before being used. After the roots have pushed well into the mixture indicated, weak liquid-manure may with advantage be applied at the root alternately with supplies of clear water; and by way of change substitute for liquid-manure top-dressings of some good plant food two or three times a week, immediately before applying clear water at the root, every other week. Plants, like ourselves, require change of diet, and benefit thereby. When the plants are in flower, a somewhat dry and airy atmosphere should be observed, in order to preserve the flowers from damp, as well as prolong the flowering period. *H. W. W.*

The Week's Work.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Onions.—This crop being now wholly cleared off the ground, should be taken to an open shed, spread out thinly, and turned over twice, and when thoroughly dry, put together in small heaps convenient for roping them on the next wet day. The ropes may be hung in an open shed or loft. Any bulbs that still retain a firm grip of the ground should be pulled up, and spread out on a dry path for a few days, turning them over a few times, or, in the event of continued rain, place under cover.

Cabbages.—Preparation for setting out the earliest-raised plants should be made forthwith. The Onion ground, if in good heart, is a very suitable site for the Cabbage crop, needing nothing further than to be hoed, and the weeds and rubbish cleared off. Should it be necessary to wait a short time to allow the Cabbage plants to become stronger, the hoeing may be repeated, thus making sure of all seedling weeds being destroyed. Let the Cabbage plants be set out with a dibber, and apply water forthwith if the weather be not showery. Although such varieties as Ellam's Early and Wheeler's Imperial, which are intended to be consumed very early and the stumps then pulled up, may be planted at 15 inches apart, I may say that I prefer to plant these small-growing Cabbages at 21 ins. from row to row, and 15 inches apart in the row, which allows more space for the gardener when hoeing between the lines and moulding up the plants. Large-growing Cabbages, such as Sutton's Imperial, Myatt's Offenham, Enfield Market, &c., should be planted 2 feet from row to row, and 1½ foot apart in the row. In many kitchen gardens long under cultivation the Cabbage-grub gives a good deal of trouble, and at the present time of year it is much in evidence. The newly set out plants should be inspected daily, and any that are observed to be eaten off should be pulled up, and a search made for the grubs, using a stout wood label for moving the soil. When a plant has been quite recently eaten off, the grub will usually be found just under the surface of the soil. Where much loss is occasioned, the plots should be inspected every evening and the grubs collected.

Celery.—Where grown in large numbers every opportunity should be seized when the weather is fine to earth up the rows of the mid-season and late Celery plants, first removing all suckers, as advised in a previous Calendar. After bundling up the leaves gently and fastening them with common bast bands, or a soft rope long enough to go round each plant in the row, and be made secure at each end, apply water if the soil needs moisture, and allow one or two days to elapse before putting any soil up to the plants, it being most important that the leaf-stalks should be quite dry before so doing. Late Celery plants should for the present not have more soil put around them than will suffice to keep the leaf-stalks close together, or a check will be given to the growth of the plants, and placing the soil higher than the tips of the heart leaves must always be avoided. Any late-planted Celery that may require a stimulus to growth should be afforded clear liquid-manure, and an application of clear water subsequently. If slugs infest the rows, dust the leaves of the plants with fresh soot, and afford a slight sprinkling of the same along the rows as the earthing-up proceeds. No pains should be spared to exterminate or drive the slugs away, as if any are left much injury is done. Conclude the final earthing-up of all Celery required for autumn use as soon as possible, three weeks being the least amount of time required for blanching.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Housing Plants.—As I write, the long-looked-for fine weather appears to have arrived, and if the weather should keep warm and bright for a month, the maturing of the growth of plants now standing in the open air will be achieved. These plants may be left out so long as we get no night frosts, but it is prudent closely to watch the thermometer, and house Ericas, Epacris and New Holland plants generally, and Oleanders, if frost should appear imminent. The last-named plants are greatly subject to scale insect, and usually need a thorough cleansing before they are housed. Ericas are subject to mildew, and should be well dusted over with flowers-of-sulphur, and the glass and painted woodwork of the house into which they are put made quite clean. The ventilation of the houses into which such plants are put should be ample day and night, and only when east or north winds are blowing should any of the ventilators be closed, and then only those on the windy side.

Euphorbia pulcherrima.—Those plants which have occupied cold frames, in order to avert checks by a fall of the temperature and the consequent fall of the leaves, should be housed forthwith; and the house should be kept as nearly as possible under the same conditions as the frames the plants have hitherto been occupying, very gradually inuring them to the warmer treatment that will be afforded them later on.

Violets.—The dripping summer has suited Violets, keeping red spider in check, or entirely preventing the infestation of the foliage. Those intended to flower early should be lifted and transplanted into pits or frames forthwith. Plant in good friable soil, and afford plenty of space, say 6 inches from plant to plant. If spent hotbed frames have to be utilised, very little heat should remain in the bed, for properly prepared plants require no further aid to flowering than to keep out frost. Afford water abundantly to the plants when they are planted, ventilate freely, and dust the leaves with flowers-of-sulphur on the least sign of spotting.

Humeas.—The young plants should now be shifted, making use of a mixture of loam two-thirds, leaf-mould and sand one-third; and for the present place them in a cold frame on a bed of coal ashes. Be careful not to afford the plants too much water.

Campanula pyramidalis.—The young stock of plants may be pricked off into boxes or potted singly; and where there is a surplus of young plants, some may be pricked out into nursery rows on a raised border, where, if the winter is not very sharp, they will survive, and form good plants for growing in pots.

Kalanchoe flammea.—Aged or badly shaped plants of this pretty, slow-growing plant may now have some of the stronger shoots taken, and inserted as cuttings in pots of sandy soil, treating the cuttings in a similar manner to Kalosanthes, Rocheas, &c. A batch put in last autumn, though not flowering this summer; is now in fine strong condition here, and will show fine heads of flower next year.

Amaryllis Belladonna. Bulbs may be potted up singly at this date, using deep bulb pots. They will be found very useful if allowed to

develop their flower spikes under glass. Flowering naturally late in the year, the flowers on out-of-doors plants get spoiled by rain and wind, and are not satisfactory, except in very favoured localities.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Border Carnations.—Growths which were layered at the beginning of last month being furnished with numerous roots may be severed from the mother-plants and planted in beds or grouped in the borders, &c., where they will flower next year. The beds or stations should be dressed with fresh loam, road-grit, and rotten dung, and be deeply dug, and if the presence of wireworm be apprehended afford a dressing of fresh soot and quicklime, and incorporate these with the surface soil. If the natural soil be clayey or retentive of moisture the beds should be raised above the general level considerably, and leaf-soil, sharp sand or road-grit, and mortar rubble mixed with it. Put out the plants 14 inches apart, and plant with great care rather deep in the soil, the latter being made in the process quite firm about the roots and stem. In light soil the layers are apt to get loosened by being swayed by the wind, so that it is good practice to support them by the aid of short sticks, placing three or four around and quite close to the stem. If the soil is dry at planting time, afford sufficient water to settle it about the plants, and as frequently as may be necessary till well rooted. Marguerite and perpetual-flowering Carnations, indispensable for autumn flowering, may now require support for the flower stems, viz., neatly dressed sticks of a suitable size, and small strips of raffia, and when colour is observed in the flower-buds the plants should have protection against frost and fogs at night. Movable frame-lights may be made use of, but removing them by day; failing these, Frigi domo, tiffany, &c., may be employed, so placing the covering that it will not touch the plants.

Sub-tropicals.—Now is the season for gardeners to visit gardens and public parks, and take notes of the various telling subjects used in sub-tropical gardens and beds.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Budleigh, Devonshire.

The Fig.—While the rain has benefited the trees in one respect, it has hindered the ripening of the fruits, and caused decay to set in at the apex of some, and caused cracking in others. As the fruits must not be gathered for eating till quite ripe, they must be protected from the birds with netting. In Devon and Cornwall the trees are generally covered with wire netting, so troublesome are the birds.

Filberts.—In Devonshire the Nuts are a very heavy crop this year, and a watch must be kept on the bushes till the crop is gathered in. The squirrels, which would very soon clear the bushes of Nuts, must be shot, and the early morning is the best time to look for them. There is also a small bird that has wrought havoc a time or two with ours not unlike the woodpecker, boring through the shell, and eating the kernel; these must be served in the same manner as the squirrels. Suckers from the bases of the bushes should be thinned, or entirely removed if not required for forming new plantations; and where the ground between the bushes is under cultivation, ply the Dutch-hoe and rake off the larger weeds. If the bushes are on turf, and the grass is grown of a good length, let it be mown, and when rotted in heaps, it may be placed around the stems, where it will serve as a manure.

Preparations for Tree Planting.—To some it may appear full early to touch upon this subject, but to those contemplating such work, and having a retentive soil to deal with, it is not too early to set about the work, especially if draining has to be done. The depth at which drains should be put in depends upon the nature of the soil, but 3½ feet to 4 feet is the average, a distance of 20 feet from drain to drain being allowed. In trenching, which takes place after the draining operations are completed, break up the soil to a depth of not less than 2 feet, and if the soil is found to be poor, it will be advisable to add fresh turfy loam rather than manure, trees usually growing too strongly, and the wood not ripening perfectly where rich manure is used. Wood-ashes, soot, or road-grit are also of use, especially on tenacious soils, the first and last-named in particular. For all stone-fruits a liberal proportion of lime-rubble or old plaster should be well mixed with the soil in the process of digging. If the subsoil is sandy or very clayey, I prefer to incorporate turfy loam with the staple, or turn it upside down, and allow it to remain at the bottom of the trench, rather than bring the subsoil to the surface. Such heavy soils should be ridged, and when planting time arrives—i.e. in six or eight weeks—it should be in good condition for the reception of the trees.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Dendrobiums.—Some of the deciduous and partially deciduous species are now fit for removal from the house in which they have been making their growth to one where a large amount of ventilation and sunshine can be afforded. It is not advisable to take them direct to an early vinery or Peach-house, where air is given day and night, but to one in which the change is more gradual; and where it is possible to so arrange it, a part of the intermediate Orchid-house is a suitable one. When fairly hardened—i.e., in a week or two, remove them to an early vinery, or better still, to the ordinary greenhouse. Such plants as have not finished their growth should be pushed on quickly, and as soon as the terminal leaf shows, the process of hardening them off in the growing house, as advised in the Calendar for August 2, should begin, to be followed by the method described in the present article. The grower should not consider that his labours are ended when the plants come into the resting house to mature, as they will stand in need of close watching, and at no time should the new pseudo-bulbs shrivel in the least degree, or the show of flower will be greatly lessened, or if the quantity is there, the blooms will be lacking in size and substance. The weather, the size of the pots, pans, or baskets, the quantity of the roots, and the method of potting must be taken into account by the gardener, as these furnish him with an idea of the quantity of water each plant will require to keep its pseudo-bulbs in a plump state. In dull or rainy weather but little water will be required, and whenever water becomes necessary, it should be applied in the morning hours, more especially to plants such as are resting in early vineries, &c. Plants growing in Orchid-pans need more water than those growing in ordinary flower-pots; but in all cases the plants, after the leaves begin to mature, require much less water, and the quantity afforded must be gradually reduced. At Gatton Park the following species and varieties are fit for removal, and in some cases have already been removed to the resting-houses:—D. Wardianum, D. crassinode, D. nobile, and its many varieties, D. × Ainsworthi, D. × melanodiscus, D. × Cassiope, D. × Curtisii, D. × Cybele, D. × Rolfe, D. × Aspasia, D. × Juno, D. × Euterpe, D. × Dominianum, D. × splendidissimum grandiflorum, D. × crassinodi-Wardianum, D. × Wiganianum, and D. × Cheltenhamense. Small seedlings of Dendrobium can be given sufficient rest by withholding water almost entirely when growing, and be kept in the same house, the atmospheric moisture in the growing-house almost sufficing to keep them sound; and as soon as the young growth shows signs of activity, which usually occurs after a rest of a few weeks, water may again be applied, and in this manner it is possible to keep the plants healthy and growing the greater part of the year for the first two years from the time of the germination of the seeds; afterwards, I prefer to treat them in the same manner as old plants.

Odontoglossum-house.—This month is the most suitable for making an examination of the plants of Odontoglossum crispum, O. Pescatorei, O. triumphans, O. Halli, O. luteo-purpureum. Many of these may require to be repotted, and all those that have not been repotted this year and do not now require it, should have the whole of the stale moss covering and some of the material removed, substituting fresh for that which is removed; and by the return of spring the new sphagnum will have grown sufficiently dense to retain the needful degree of moisture. Another advantage to be derived from following this practice at the present season is that the plant is enabled to become dry quickly after being afforded water, and it permits the needful admission of air in greater quantity to the roots. I would refer the reader to the Calendar for July 19 as regards compost and potting and after treatment.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Melon-houses.—In a general way the last set of Melons is now formed, and the plants should be afforded a bottom heat of 85°, a night temperature of 70°, and the most should be made of sun heat by closing the houses early in the afternoon, allowing the warmth to reach 85° to 90°, damping the paths and other surfaces, but dewing the plants over only on very bright days. While the fruit is swelling, afford plenty of water at the root, and sprinkle the bed with a fertiliser, which will give stout foliage capable of resisting insect and other pests, and remaining healthy till the fruits ripen. Shorten all growths to one leaf beyond a fruit, and suppress most of the remainder. Fix supports under the fruits at an early stage of growth. Melons this year are requiring more fire heat than usual, in order to maintain a mean temperature of 70°, with ventilation constantly afforded.

Cucumber-house.—A few plants raised from seed sown about the middle of July and planted at the beginning of last month, or grown in pots in a house with a mean temperature of 65°, will supply Cucumbers till the new year, and save the plants especially raised for winter work. The plants will make good growth, and the usual attention must be afforded them in regard to regularly thinning the bine, stopping the shoots, airing, damping down, &c. Sprinkle the bed with an artificial fertiliser, and do everything that will maintain the foliage in health.

Winter Cucumbers.—The plants raised from seed sown early in August being now ready for planting, may be set out in the beds. Before proceeding with this operation, cleanse the woodwork and glass, using in the water a strong insecticide; and lime-wash the walls. Clear out the exhausted soil, replacing it with the best fresh turfy loam in a rough state, mixing it with an equal quantity of short, rotten stable-dung, first placing rubble for drainage at the bottom, and covering this with sods. Form the soil into a ridge, and when warmed throughout put out the plants at 2 feet apart. Afford a considerable quantity of ventilation, and allow no fruits to form before the short days come, and then crop the plants lightly.

Strawberries for forcing.—All plants should be in the fruiting pots, and standing in full sunshine on boards or coarse gravel, coal-ashes, &c., ere this. Keep the soil clear of weeds and the plants of runners, and restrict each plant to one crown. When the pots are filled with roots afford weak manure, and let the stock of plants be examined daily, applying water where needed.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, SEPT. 16 { Dahlia Show at Royal Aquarium, Westminster (3 days).

THURSDAY, SEPT. 18 { Fruit Show at the Crystal Palace by the Royal Horticultural Society (3 days).

SALES FOR THE WEEK.

MONDAY SEPTEMBER 15—
Bulbs, Palms, Bays, &c., at Stevens' Rooms. Trade Sale of Pot Plants at Dyson's Lane Nurseries, Upper Edmonton, by Protheroe & Morris, at 11. Dutch bulbs at Protheroe and Morris' Rooms, at 11.

TUESDAY, SEPTEMBER 16—
Trade sale of winter-blooming Heaths at Burnt Ash Road Nurseries, Lee, by Protheroe and Morris at 11. Dutch Bulbs at Protheroe and Morris' Rooms at 11.

WEDNESDAY, SEPTEMBER 17—
Bulbs, Palms, Bays, &c., at Stevens' Rooms. Trade Sale of Winter flowering Plants at the Nurseries, South Woodford, by Protheroe & Morris at 11. Dutch Bulbs at Protheroe & Morris' Rooms at 11.

THURSDAY, SEPTEMBER 18—
Sale of Stove and Greenhouse Plants, &c., at the Brunsdown Nurseries, Green Street, Enfield Highway, by Protheroe & Morris at 11.
Trade Sale of Winter-blooming Heaths at Longlands Nursery, Sidcup, S.E., by Protheroe & Morris, at 1. Dutch Bulbs, at Protheroe & Morris' Rooms, at 11.

FRIDAY, SEPT. 19—
Dutch Bulbs, at Protheroe & Morris' Rooms, at 11; Orchids at 12 30.

Bulb and Plant Sales daily, except Saturday, Pollexfen & Co., 12.30.—Ditto on Monday and Wednesday, at 12.30, J. C. Stevens.—Every Monday, Johnson, Dymond & Son.

(For further particulars see our Advertisement columns)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —57 3°.

ACTUAL TEMPERATURES:—

LONDON.—*September* 10 (6 P.M.): Max. 68°; Min. 58°. *September* 11.—Dull, rainy.

PROVINCES.—*September* 10 (6 P.M.): Max. 61°, Scilly; Min. 45°, Shetland.

Sweet Peas.

THE Committee of the National Sweet Pea Society has felt the need for a classification of existing varieties and has therefore, with a view of obtaining a greater degree of concordance of opinion than now prevails among growers, published a classified list of the most desirable kinds. This list is based upon the experience of many growers, whose testimony has been collated and sifted, so that it doubtless represents the best expert opinion of the time.

The Committee, as we are informed, is convinced that the varieties which occupy the first, second and third places under the several colour headings—and to which the number of votes each received are attached—are the best of those in general cultivation. Several varieties, like Dorothy Eckford and Countess Spencer, would have received many more marks had they been more widely known, and to this fact alone must be attributed the positions they occupy in the accompanying tables, but as the lists will be subjected to occasional revision any necessary addition or adjustment can be made. It will be observed that in each case a certain number of varieties are on the left side and a certain number on the other side of the line; the latter are there placed either because they have been superseded by others, or because they are not sufficiently well known for an authoritative opinion of their merits to be expressed.

As the annual meeting of the Society will not be held until January, there was a clearly expressed desire that the results of the work of the Committee should be published early, so as to enable the seed merchants to include them in their catalogues in the form of recommendations to those who are, by their positions, proved to be of superior merit.

Maroon and Bronze.—24, Othello; 23, Black Knight; 22, Stanley; Shahzada.—— ——Boreatton.

Lavender.—25, Lady Grisel Hamilton; 22, *Countess of Radnor; 19, Lady Nina Balfour; *New Countess.——Princess May; Celestial; Creole.

White.—27, Blanche Burpee; 26, Sadie Burpee; 24, Emily Henderson; Dorothy Eckford; Mont Blanc.——Mrs. Sankey, Queen of England, Alba magnifica, White, White Eagle.

Fancies (those with more than two distinct shades).—6, Lottie Hutchins; 4, Stella Morse; 3, Coquette; Duchess of Westminster, Duchess of York, Gracie Greenwood, Mrs. Fitzgerald. ——Dolly Varden, Ramona, Alice Eckford, Captain Clarke, Carmen Sylva, Etna, Rising Sun, Vesuvius, Crown Jewel, Emily Lynch.

Magenta.—7, George Gordon; 7, Captivation; 5, Calypso.

Cerise.—9, Coccinea.

Stripes and Flakes — Red and Rose.—25, America; 18, Aurora; 18, Mrs. Jos. Chamberlain; 13, Pink Friar.——Gaiety, Coronet, Mikado, Queen of the Isles, Invincible Striped.

Stripes and Flakes—Purple and Blue.—20, Princess of Wales; 19, Senator; 15, Grey Friar; Wawona. —— Juanita, Midnight, Columbia, Purple Striped, Striped Celestial.

Yellow and Buff Shades.—25, Queen Victoria; 24, The Hon. Mrs. Kenyon: 21, Mrs. Eckford; Lady M. Ormsby-Gore, Primrose, Venus, Golden Gleam.——Gleam of Brockhampton.

Bicolors.—19, Triumph; 17, Little Dorrit; 14, *Blanche Ferry; Prince Edward of York, Countess of Shrewsbury, Jeannie Gordon, Duke of York, *Earliest of All.——Lady Beaconsfield, Empress of India, Painted Lady, Apple Blossom, Bronze King, Lady Skelmersdale, Delight.

Blue.—26, Navy Blue; 24, Countess Cadogan; 22, Captain of the Blues; Emily Eckford, Baden Powell. —— Imperial Blue, Grand Blue, Madame Carnot.

Mauve.—17, Dorothy Tennant; 10, Admiration; 6, Fascination. —— Violet Queen, The Queen.

Violet and Purple.—15, Duke of Westminster: 12, Duke of Sutherland; 11, Duke of Clarence. ——Monarch, Indigo King, Purple Prince, Waverley, Black Purple.

Crimson.—27, Salopian; 24, Mars; 15, Firefly; Cardinal.——Brilliant, Duchess of Edinburgh, Ignea, *Invincible Scarlet, *Invincible Carmine.

Rose and Carmine.—23, Prince of Wales; 20, Her Majesty; 18, Mrs. Dugdale; Royal Rose, Lord Kenyon, Lord Rosebery, Splendour, Colonist. —— Adonis, Fashion, Novelty, Ovid, Princess Beatrice, Eliza Eckford, Miss Hunt.

Pink.—24, Prima Donna; 23, Lovely; 19, The Hon. F. Bouverie; Countess of Lathom, Princess Beatrice, Countess Spencer, Katherine Tracey.——Mrs. Gladstone, Peach Blossom, Royal Robe, Isa Eckford.

Orange Shades —21, Gorgeous; 20, Lady Mary Currie; 19, Miss Willmott; Chancellor, Countess of Powis, Oriental, Lady Penzance. ——Meteor, Orange Prince.

Blush.—21, Duchess of Sutherland; 14, Modesty; 9, Countess of Aberdeen; Sensation. —— Fairy Queen, Lemon Queen, California, Blushing Beauty.

Picotee-edged.—18, Lottie Eckford; 14, Maid of Honour; 11, Golden Gate; Butterfly.

The total number of growers whose ideas are embodied in these tables is twenty-seven. *Horace J. Wright, Hon. Gen. Sec., 32, Dault Road, Wandsworth.*

It will be seen that the list is drawn up exclusively for practical purposes, and that one "character" only, that furnished by colour, is taken into consideration. That may be permissible in a first attempt, but it is to be hoped that the Society will justify its existence by availing itself of the opportunity it has of advancing our knowledge of the phenomena of variation by correlating the diversities in colour with those exhibited in the form of the several parts of the flower, the habit, degree of hardihood, the foliage, the powers of adaptation to varying conditions and circumstances, and so forth. If these details be objected to as too scientific, a moment's consideration will show that they are pre-eminently practical. If we want to promote the advance of horticulture, even in the comparatively trivial matter of Sweet Pea growing, it must be by the adoption of scientific methods.

* For the purposes of this classification and for exhibition, varieties marked with an asterisk are considered synonymous.

BAGSHOT PARK (see Supplementary Illustration).—In a previous issue, we gave an illustrated account of these interesting gardens, the property of H.R.H. the Duke of CONNAUGHT. On this occasion we give a supplementary illustration which will serve to show the vigorous growth made by the shrubs in this favoured spot. The figures represent a specimen bush of Kalmia latifolia, and another of an Azalea of the pontica type.

"BOTANICAL MAGAZINE."—The plants figured and described in the September number are:—

Cynorchis purpurascens, Thouars, t. 7852.—A species with noble foliage and stalked heads of long-spurred, lilac flowers. It is a native of the Mascarene Islands, whence it was introduced by Mr. Warpur. Kew.

Dischidia hirsuta, Decaisne, t. 7853.—A singular Malayan climber with small ovate hairy leaves, and clusters of small reddish flowers. Although it produces aerial roots it does not form the curious pitchers which characterise some of the species. Kew.

Podocarpus pectinata, Pancher, t. 7854.—A handsome conservatory tree or shrub, with linear silvery leaves. Native of New Caledonia, see *Gardeners' Chronicle* 1892, i., 113.

Epidendrum Endresi, Reichenbach, in *Gardeners' Chronicle*, 1883, i., 432, t. 7855, Costa Rica. Kew.

Bryophyllum crenatum. Baker, t. 7856, Central Madagascar. Kew.

THE LANGUAGE OF DAHLIAS!—The *Révue de l'Horticulture Belge* is responsible for an anecdote relating to the language and poetry of flowers as understood in Germany. It is related that a florist, unable to supply sufficient Roses, Orange-blossoms and other appropriate flowers in a bridal bouquet, substituted white Dahlias for them. At sight of these the bride considered herself insulted, and declined the luckless bouquet, which was returned to the florist. The story goes even further, and relates how the imprudent bouquet-maker was fined some 300s., with costs amounting to about the same sum (some £30 in all), for an arrangement whose original price was less than 5s. We do not vouch for the correctness of the story.

EDINBURGH.—A severe gale, attended by heavy rain, passed over the city on the 3rd inst., uprooting many valuable trees and severely damaging others. The summer bedding plants were completely wrecked. The cornfields present a sad spectacle, the crops

Kalmia in the gardens, Bagshot Park: from a photograph by J. Gregory.

Hardy Azalea at Bagshot Park, the seat of H.R.H. The Duke of Connaught.

eing laid low on the ground in a confused mass, so that the harvest prospects are gloomy.

THE LIVERPOOL HORTICULTURAL ASSOCIATION.—At the last meeting of the committee of the above Association, it was decided to hold spring and autumn shows next year, the spring show to be held on March 25 next. I shall be glad if you will kindly announce the same. *Harold Sadler, Secretary.*

THE TUNNEL GARDEN, POPLAR.—This is one of those outputs of the London County Council so vastly appreciated in the crowded localities of the metropolis. It covers an extent of 2 acres, in close proximity to the Poplar entrance to the Blackwall Tunnel under the Thames, and was thrown open to a host of youngsters — for whom it is principally designed — recently. It is divided into two parts, half for girls and half for boys, so that in the recreation zone there will be no commingling. This is a step in the right direction.

GARDEN CITY PIONEER COMPANY. — The Directors have allotted 7,163 shares out of the 20,000 which it is proposed to issue. The allotment will permit the Company to start business, and to proceed to the work of investigating estates. Since the allotment several applications have been received, and the total number of shares now applied for, or promised to be taken, is over 9,000, inclusive of 1,000 which will be applied for by Mr. W. H. LEVER if required. The following conditional offers have also been received :—John P. Thomasson, Esq., £900; George Cadbury, Esq., £700; E. W. B. Richmond, Esq., £100; Arthur Valpy, £100; Albert Spicer, Esq., £50; A. H. Pain, Esq., £50; The Hon. Claude G. Hay, M.P., £10; Rev. Arthur T. Barnett, £5 to £10; Mr. E. Haughton James, £50=£1,965, when £18,085 is raised. In order to secure the benefit of these offers, 9,000 shares must still be taken up. Those who can only take one or two shares are welcome to become pioneers in this great movement. Mr. ALFRED HARMSWORTH has taken 1,000 shares. "I think," he says, "some such movement essential to our national well-being." Mr. GEO. CADBURY says, with reference to the removal of his factory to Bournville,—"I have been recompensed a hundredfold for the effort. . . . Our experience shows that nothing pays a manufacturer better than to go into the country. He gets his land cheap, and he can extend his factories to any extent, if he only buys enough to start with. . . . The more I think of the subject, the more convinced I am that it will be the greatest boon ever conferred on the toilers of this country if it can be carried through to any large extent." Mr. W. H. LEVER says,—"If the difficulties with regard to building garden cities were infinitely greater than I have ventured to point out, they are very small compared with the prize to be won by the production of a physically superior and contented and happy people, which should be the happiest in the world to-day in my opinion. We cannot attain any finer object, and it will be the means of placing our nation, as a nation, far ahead of any of our competitors, no matter how determined or how eager they may be to seize from us the commerce that we have been carrying on for so many years." The Directors of the Company are: Ralph Neville, Esq., K.C. (Chairman); Edward Cadbury, Esq.; Ebenezer Howard, Esq.; T. H. W. Idris, Esq., J.P.; Howard D. Pearsall, Esq., M.Inst.C.E.; Franklin Thomasson, Esq., J.P.; T. P. Ritzema, Esq., J.P.; and Aneurin Williams, Esq. Thomas Adams, Secretary (*pro tem*), 77, Chancery Lane, London, W.C., August 25, 1902.

MR. J. CHEAL, OF LOWFIELDS NURSERY, CRAWLEY.—We understand that this well-known nurseryman, fruit grower and landscape gardener has returned from a holiday spent in America; and a brief account of his experiences and impressions of Canada, and the towns and country in the eastern United States, was published in the *Sussex and Surrey Courier* of August 30, 1902.

AGRICULTURAL RETURNS.—We take the following figures from a leaflet just issued by the Board of Agriculture :—

	1902	1901	Increase.		Decrease.	
	Acres	Acres	Acres	Per Cent.	Acres	Per Cent.
Total area of land & water .	56,786,173	56,786,17	...	...	...	...
Total acreage under all crops & grass.	32,387,965	32,417,445	...	...	29,480	0·1
Small fruit ...	75,378	74,999	379	0·5	...	...
Bare fallow ...	293,131	344,105	...	...	50,974	14·8

THE MIDLAND DAFFODIL SOCIETY. — The next annual show of this Society has been provisionally arranged for April 23 and 24, 1903. The schedule of prizes to be offered on the occasion has been published, and may be obtained from Mr. HERBERT SMITH, 22, Tenby Street North, Birmingham. A report of the committee's work for the past year shows that there is a balance to the good of rather more than £80. An account of the papers read at the dinner, and of the discussion which followed, is included in the little pamphlet.

MR. G. FULFORD.—We learn from this clever gardener that he is leaving the service of A. G. SANDEMAN, Esq., Presdales, Ware, Herts, in order to improve his position in the profession, and we wish him every success.

RAGLEY HALL, ALCESTER.—On Thursday, September 4, by the kindness of the Marquis of HERTFORD, the beautiful gardens and pleasure grounds at Ragley Hall, Alcester, were thrown open to the public, who had the opportunity of contributing to the funds of the Gardeners' Royal Benevolent Institution. The inhabitants of Alcester and neighbourhood gladly availed themselves of the opportunity to inspect the beauties of the place. A considerable sum of money accrued to this most excellent charity from the marquis's kindly effort to benefit its funds.

PARCEL POST TO AMERICA.—Arrangements have been made by the General Post Office and with the American Express Company for the conveyance of parcels between this country and the United States of America, to commence September 1, at the following rates :—

NEW YORK CITY, BROOKLYN, JERSEY CITY, HOBOKEN.

	Under 3lb.	3 to 7lb.	7 to 11lb.
	1/-	2/-	3/-
*Clearing Fee ...	1/-	1/-	1/-
*Sample Office Fee ...	1/-	1/-	1/-
	3/-	4/-	5/-

OTHER PARTS OF UNITED STATES.

	Under 3lb.	3 to 7lb.	7 to 11lb.
	2/-	3/-	4/-
*Clearing Fee ...	1/-	1/-	1/-
*Sample Office Fee ...	1/-	1/-	1/-
	4/-	5/-	6/-

* May be prepaid or collected from the addressee.

Usual customs duties extra. Sender may assume responsibility for customs charges, thus ensuring delivery free of cost to the recipient. Insurance, 6*d*. for each £12 up to £120. Two copies of customs declaration on non-adhesive forms required. Parcels will be accepted for transmission from any post office in the United Kingdom. The Express Delivery Company is responsible for delivery in the United States of America. Size limits:—greatest length, 3 feet 6 inches; greatest length and girth combined, 6 feet. Mails made up in London Tuesday and Friday evenings.

M. CHARLES JOLY.—We are concerned to have to announce the death of an ardent worker in horticulture and of an old friend in the person of CHARLES JOLY. In sprightliness of manner and restless energy he was a Frenchman of Frenchmen, but his long sojourn in the United States had lent him, rather than given him, some of the characteristics that we associate with the citizens of the great Transatlantic Republic. In particular he was never weary of enforcing on his countrymen the necessity of "waking up," of abandoning routine or modifying it to suit altered circumstances, and of "going full steam ahead." It is possible that the comparisons he made to the detriment of the system pursued by his own countrymen were not always palatable to his hearers, but his patriotism was so intense and his motives so transparently well-intentioned that JOLY ended by securing the admiration and gratitude of his fellows. He was indeed most zealous in his efforts for the promotion of horticulture, and an indefatigable member of the National Society of Horticulture, of which he was a Vice-President. He was the inventor of a system of heating known by his name. He was an occasional visitor to this country, where the originality and liveliness of his conversation, together with his extensive and varied knowledge, rendered him a welcome guest. M. JOLY died on August 25, at the age of eighty-four.

DUTCH HORTICULTURAL AND BOTANICAL SOCIETY.—At the meeting on Wednesday, August 20, 1902, the Floral Committee awarded First-class Certificate to Mr. T. E. HOUTVESTER, Utrecht, for Pelargonium zonale, Mr. H. Martinet; to Mr. J. J. VAN CRUIJNINGEN, Haarlem, for Fuchsia Fürst Otto von Wernigrode. Certificates of Merit were granted to Mr. J. TH. V. D. BERG. JUBPHAAS, for a single Dahlia, President Viger (as a new plant). A Botanical Certificate was awarded to Mr. H. D. WILLINK VON COLLEN BRENKELEN, for Lepidostemon pentstemon [?]; Mr. C. J. KIKKERT, Haarlem, for Epidendrum Medusa (as a rare plant). A Honourable Mention for Odontoglossum cristabellum and Odontoglossum ramosissimum, to Mr. C. J. KIKKERT, Haarlem. Silver Medal and 25s. to a collection of hardy perennials in 350 varieties from Messrs. WEZELENBURG and STASJEN, Leiden. A Silver Medal to a collection of 100 varieties of Lathyrus, from Messrs. GRŒNEWEGE & Co., Amsterdam; to a collection of twenty-five single Pelargoniums zonale, 1—25 varieties from Mr. T. E. HOUTVESTER, Utrecht. A Bronze Medal to a collection of hardy Nymphæas in variety from Messrs. M. v. WAVEREN and LONEN, Hillegom; to a collection of twelve double Pelargonium zonale, 1—12 varieties, from Mr. T. E. HOUTVESTER, Utrecht. *P. W. Voet, Asst. Secretary, Overveen, near Haarlem,* 1902.

STOCK-TAKING: AUGUST.—Notwithstanding that the comparison below is made with a month numbered among the hottest in the year now closed, the comparison is against us. There is a falling off in imports of £524,569

The amount is small, but there it is recorded, and the reason is not far to seek—hot days attending a retarded Coronation, and the usual Bank "rest." These are more than sufficient for our purpose of giving a reason why. The Trade Returns for last month show a total import of £40,412,571, as against £40,937,140 for the same period in 1901—decrease £524,569. Our usual extracts from the summary table are as follows:—

IMPORTS.	1901.	1902.	Difference.
	£	£	£
Total value ...	40,937,140	40,412,571	−524,569
(A.) Articles of food and drink—duty free	8,137,854	9,206,755	+1,068,901
(B.) Articles of food & drink—dutiable	8,904,765	8,045,460	−859,305
Raw materials for textile manufactures	3,298,303	2,503,027	−795,276
Raw materials for sundry industries and manufactures	6,078,292	6,267,644	+189,352
(A.) Miscellaneous articles	1,392,855	1,107,050	−285,805
(B.) Parcel Post ...	84,744	118,013	+33,269

It is noticeable in the general returns that tobacco has gone up some £239,864, which may be set to the account of holiday enjoyment, actual and prospective. The increase of £33,269 in the item of "parcel post" reminds us that the new arrangement for carrying parcels promises to make the total here grow considerably; but as in the case of everything else, time will show. All the figures relating to imports of fruit, nuts and vegetables are as usual very interesting.

IMPORTS.	1901.	1902.	Difference.
Fruits, raw:—	Cwt.	Cwt.	Cwt.
Apples	49,945	40,659	−9,286
Apricots and Peaches	1,759	3,345	+1,586
Bananas... bunches	221,647	227,641	+5,994
Cherries	5,248	6,940	+1,692
Currants	5,394	13,982	+8,588
Gooseberries	64	2,513	+2,449
Grapes	140,268	101,852	−38,416
Lemons...	101,198	68,872	−32,326
Nuts—Almonds ...	2,220	5,751	+3,531
Others, used as food	30,414	27,600	−2,814
Oranges...	7,257	9,075	+1,818
Pears	139,810	140,562	+752
Plums	169,939	269,910	+99,976
Strawberries	.....	732	+732
Unenumerated, raw...	183,270	181,373	−1,897
Fruits, dried—			
Currants, for home consumption ...	21,686	29,858	+8,172
Raisins ,, ...	11,932	10,777	−1,155
Vegetables, raw:—			
Onions ... ...bush.	750,394	833,745	+83,351
Potatos ... ... cwt.	214,049	219,170	+5,121
Tomatos... ... ,,	132,786	111,353	−21,433
Vegetables, raw, unenumerated ...value	£33,390	£29,716	−£3,674

The returns for the eight months just finished show a total of £347,172,166, as compared with £346,318,351—an increase of £853,815. Turning now to the—

EXPORTS,

we find that for last month they reached £24,299,826, against £24,205,569—an increase of £94,257. It is noteworthy that £158,499 was the increase in exports of articles of food and apparel. In the eight months there was a decrease of £1,467,168, compared with the same period last year—the figures being, for the eight months just ended, £185,704,570, for the same period last year £187,171,738.

SEVERE DESTRUCTION OF FRUIT AT MAIDSTONE.—We are extremely sorry to receive the news conveyed in the following letter, as it is likely that other fruit gardens in this fruit-growing centre have also suffered injury from the storm. The notes upon the fruit at Barham Court on p. 192 were, of course, written before the unfortunate visitation. Mr. WOODWARD'S letter is as follows: "A most terrible and destructive storm of hail has visited this part of Kent this afternoon. The whole of my Apple crop of about 600 sieves, also Pears, and 6000 Peaches, are irretrievably ruined. Such destruction I have never seen before. The whole of my Apples, Pears and Peach-trees are stripped, and are almost as bare as in mid-winter, and the bark cracked and bruised with the hailstones. I have 1,527 panes of 21-ounce glass broken. I have just measured the depth of the hail upon the ground, and find it in some places 9 inches to 1 foot in depth. At the bottom of the walls it is quite 2 feet in thickness. All vegetables are completely ruined. Chrysanthemums, Strawberry plants, Peas and Beans are stripped and quite bare. I am sending by parcel post a few fruits and some pieces of Chrysanthemum, &c., for your inspection. If you could send someone down to see the effects, I think they would surprise him. *G. Woodward, Barham Court Estate Gardens, Teston, Maidstone, Sept.* 10.

FREESIAS.

THESE beautiful Cape winter and spring-flowering bulbous plants are not grown so extensively as they undoubtedly deserve to be, seeing that they are of easy culture, and the spikes of white and primrose-coloured flowers which they produce with great freedom are deliciously scented; whilst the price of the corms or bulbs is such as to bring the culture of them within the reach of everyone possessed of a garden-frame or small greenhouse. Pots 4½ and 3 inches in diameter are the most suitable and useful sizes to grow the plants in for decorative purposes. And in order to achieve the best results, good even-sized bulbs should be obtained, and potted early in August for the earliest flowering till February. Place a few small crocks in the bottom of each pot for drainage, covering these with a handful of half-rotten leaves or a little moss to prevent the soil getting into and choking the drainage. This done, fill the pots to within an inch of the rim with a compost consisting of three-parts light sandy loam, and one of leaf-mould. Place eight bulbs in each 3-inch pot, and twelve in a 4½-inch one, covering these with compost up to the rims of the pots. The earlier pottings may be placed on sifted coal-ashes out-of-doors, and covered with coal-ashes about 3 inches deep. As soon as the bulbs have made ½ inch of growth, they should be removed to a cold frame near the glass, and shaded heavily at first, but gradually inured to the light and a small amount of air.

When this stage is reached, and the pots have filled with roots, small batches should be introduced to a heated pit, where such is available, at short intervals of time, keeping the plants near to the glass to insure a sturdy growth; and to assist in this, and the consequent production of stout flower-spikes, waterings of tepid diluted liquid-manure should be given, with occasional top-dressings of some approved fertiliser, immediately before applying clear water at the roots. Flowers from plants treated in this manner can be obtained from Christmas onwards. They are admirably adapted for furnishing purposes; the arching spikes of from nine to thirteen flowers hanging gracefully over the edge of tables. Baske and vases have a very pretty effect—an effe which is greatly enhanced by the delightf fragrance emitted therefrom. The individu flowers are also very useful and suitable f button-holes, shoulder-sprays and bouquet as they wire well, are of the right colour, addition to being, as already stated, ver sweetly scented. The variety F. Leichtli major is a seedling of robust and branchin habit, and the primrose-coloured flowers a larger and more sweetly-scented than those F. refracta alba. Most of the plants of Leichtlini major, in 3-inch and 4½-inch pot treated as described, will produce nine an thirteen spikes of flowers respectively. A liquid-manure is objectionable in a conserva tory or greenhouse, occasional top-dressing of some good almost scentless artificial manur should be employed instead, applying it in th manner indicated above.

After the plants have shown their flowe spikes, a few dozen or a hundred pots, more o less according to circumstances, should b transferred from the cool-frame or heated pi to suspended shelves near the roof-glass i forcing-houses, in which a night temperature o from 60° to 70°, according as the weather is col or mild, is maintained, until the plants begi to develop their flowers, when they should b shifted into the greenhouse or conservatory selecting therefrom plants for the decoratio of rooms, &c., as required; the bulk of th plants being kept growing steadily in the hot water pit with a temperature at night rangin from 35° to 40°. Plants when out of flowe should be stood close together on a shelf in house or pit where the temperature does no fall below 40°, and be afforded water regularl until the foliage begins to show signs of decay when water must be gradually withheld; an in order to complete the ripening of the bulb they should be left in the same position full exposed to the summer's sun until the end o July or middle of August. At that season th bulbs should be shaken out of the soil an sorted into sizes, the largest bulbs being pu by themselves, the medium and small one being treated in like manner, and potted up i that order. If treated in this manner th bulbs increase in size and floriferousness *H. W. W.*

NURSERY NOTES.

MR. W. J. GODFREY'S, EXMOUTH.

THE proprietor of this nursery is well known as a raiser and grower of Tree-carnations, an it is not surprising to find that he has taken i hand the border varieties with a view t improving them, and wherein he has met wit a fair measure of success. So called borde varieties are legion, but varieties that wil withstand the severities of winter, excepting in fairly light soil, are not very numerous and it is erroneous to describe them all a such. Moreover, now that a good numbe of Carnations exist which can be flowered successfully under glass during the winte and spring, it only seems to be necessary t have the hardiest varieties for outdoo culture; for wintering border varieties i cold frames entails labour and accommodation "Utility" is a term that might well be applied to Mr. Godfrey's seedlings, as I saw them recently while in bloom. Their sturdy habit, good constitution, long stiff flower stems, per fect calyx, and fragrance justly entitle them to a place among the best border varieties. Of novelties, there were remarked Mrs. J. P. Bryce, form and petal perfect, colour brilliant

crimson, a pleasing flower; Exmouth Rival, rich apricot, flaked scarlet, a striking flower, possessing a good calyx and long stiff stems, and very floriferous; Godfrey's Pride, an early flowering variety and almost as large as a Souvenir de la Malmaison, of good form, the colour rose-pink; George H. Godfrey, buff, flaked with claret, sound calyx, a good flower, very free, and possessing a good constitution; Crimson King, resembles the Old Clove, good for furnishing flowers in quantity, and hardier than the Old Clove; Miss Ena Money, a good white flower, said to be superior to that good variety, Mrs. Eric Hambro.

Last year's introductions include Exmouth Pink, of a popular salmon-pink colour. I do not know of another border variety of quite the same tint, it has everything to recommend it as a variety for cutting. It has a good calyx, long, stiff flower-stalks, is a hardy variety, and clove-scented; Mrs. Hammond Spencer, is a medium-size flower, resembling Lady Ardilaun; Beauty of Exmouth, very fine white, with every good quality, was certificated by the National Carnation Society at the Crystal Palace and Birmingham; Pride of Devon, a show variety, but good for the border, citron yellow, pencilled with carmine scarlet; Glare of the Garden, very sturdy stems, good border variety, bright scarlet, pencilled crimson-chocolate; Popularity, a good crimson, for supplying flowers in quantity; Bacchus, better than Perseus; Delicatus, Fair Maid, somewhat like Elsie; Salmon Queen, and Mrs. George Foster, yellow. The best of the border varieties, fancies, and the "Martin Smith" varieties, are also grown in quantity. While Exmouth may by many be considered an ideal climate for border Carnations, the soil is not quite so good in this particular part of the nursery. It may therefore be assumed that what will thrive there will do so elsewhere.

The collection of Chrysanthemums promises well for a fine display at a later date, the leathery leaves on the plants, and firm, strong shoots, denoting great vigour. The winter-flowering Carnations are looking remarkably clean and healthy. *P. T. More.*

RAINFALL AT ROTHAMSTED.

DURING the past year the remark has frequently been heard of the excessive rainfall which we have experienced, so that many persons will be surprised to learn that at the Rothamsted Agricultural Experiment Station, which is situated in Mid Herts, the rainfall for what is called the harvest year, that is from Sept. 1 to August 31, is for the present year $5\frac{1}{3}$ inches less than the average rainfall for a period extending over forty years. There were nine months with a deficient rainfall, and three months only—viz., December 1901, June and August, 1902—which gave an excess of rain over the average amount. When it is remembered that 1 inch of rain represents 101 tons of water on each acre of land, and that the $5\frac{1}{3}$ in. is, therefore, equal to the large quantity of 542 tons of water deficient, it can be realised how greatly the majority of plants and crops must have suffered for the want of moisture. The fact is there has been a considerable number of dull, showery days with but little bright sunshine. From the 365 days of the past harvest year there has been but 75 days when the rain gauge at Rothamsted was quite empty. On each of the other 290 days there was either rain, snow, or heavy dew in sufficient quantity to measure. On no day of the year was 1 inch of rain recorded, and on but six days did more than $\frac{1}{2}$ inch of rain fall.

The surface of the ground has thus been fairly saturated, while the subsoil has been dry and hard. Shallow-rooting plants have not suffered very severely, but deep-rooting plants and fruit-trees have felt the effects of the drought, so much so that Apples are for the most part very small, many being scarcely worth the gathering; and a considerable quantity have fallen, as the trees were not able to sustain the fruit.

The saturation of the surface ground from the over average August rains has been bad for the Potato crop, and disease is becoming very prevalent; large areas are showing a blackened haulm, and tubers are rotting fast.

In the neighbourhood of Mid Herts there appears to be a great danger of water-famine; the springs of water in the wells are greatly decreasing, and the flow of the rivers is falling off. We find from the Rothamsted records that if we take the rainfall for the last thirteen harvest years, from 1889—90 to 1901—2, there are five years which gave an excess of rain amounting to $13\frac{1}{4}$ inches; while there are

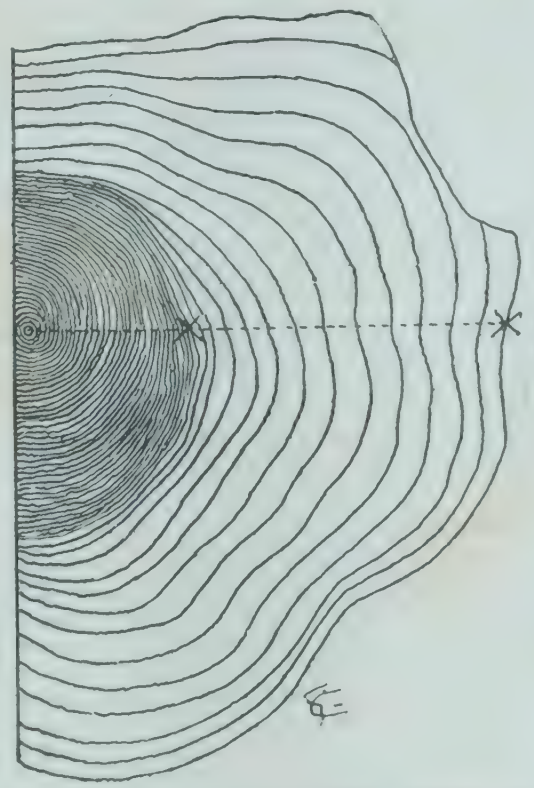


FIG. 68.—SECTION OF SPRUCE SHOWING EFFECTS OF THINNING.

eight years which gave a deficiency of rain amounting to 38 inches. Deducting the $13\frac{1}{4}$ from the 38 leaves a gross deficiency of $24\frac{3}{4}$ ins. of rain for the thirteen years, an amount which is equal to the enormous quantity of $2495\frac{3}{4}$ tons of water on each acre of land deficient from the average of the past forty years, which is nearly one year's rainfall deficient, and yet people are talking about the excessive rains. *J. J. Willis, Harpenden.*

FORESTRY.

THE IMPORTANCE OF THINNINGS.

THE importance of cutting to let in air and light in the forests is well represented in the diagram (fig. 68). It represents a cross-cut of the common Spruce, Picea excelsa. The tree was 121 years of age when cut in the year 1899. In the year 1879 thinning-out of the forest around the tree was made, and from this year one can see the quick development of the wood. The inner, dense mass was formed during 106 years, and the rings for every year are close to one another; the outer rings are wider apart. The diameter of the cross-cut was 27 cm. *N. E. D., Gothenburg, Sweden.*

HOME CORRESPONDENCE.

POTATO DISEASE.—I am sorry to find the disease is spreading very rapidly in this district. Up to the middle of the month of August the crops were healthy and quite free from disease, but they have gone off very rapidly since—in fact it is many years since I have seen Potatos in a worse condition. Whole fields have become attacked in the haulm in a few days. Many of the sets around this part sprouted very badly and would not have paid for the seed had they been quite sound. When at Worthing at the beginning of August, I saw that the disease had made its appearance there, and the growers were busy mowing off the haulm, the tubers not being sufficiently matured to lift. On Sunday last I witnessed a plot of out-door Tomatos, about 5,000, that seemed struck with the same disease as the Potato, the appearance being the same. At Worthing the out-door Tomato crops are a failure, although perfectly healthy at the time of my visit; but the Cucumber disease has proved most destructive this season, and many Cucumber cultivators have entirely given up the business. *E. Bennett, Farnboro, Hants.*

DISSOCACTUS BIFORMIS.—In looking at this plant and musing over it one day, I came to the opinion, from its growth, that it is a true genus, and is nearer to Rhipsalis than to Phyllocactus. I never saw the latter make growth like it, viz., by throwing out shoots in the way of Rhipsalis; some produce long, straight shoots 2 feet long, and then make a thick growth, and then, in the growing season, produce the like. I have now a growth of Dissocactus 2 feet long, with twenty-eight side growths to it this season; and the one I made the observation on is standing out-of-doors, and in the spring it had upwards of ninety flowers and buds upon it. Is not the fruit different from Phyllocactus, and more like that of Rhipsalis? These plants I am remarking on came from seed. I have one, a cross from Cactus speciosus grandiflorus and Rhipsalis, but it appears to me it is never going to perform any wonder, for its growth is so very slow. What is the cause or reason I am at a loss to say; it is flat in growth, with fine hairs or spines at the eyes. I grow a few mixed plants as objects of interest and recreation. *J. C.*

HORTICULTURAL LECTURING AND JUDGING.—As autumn is now fast approaching, when County Councils and other rural authorities will be busy selecting men as horticultural lecturers, it is opportune to impress upon them the necessity of selecting men of experience, who know what they are talking about. I am aware that the majority of men so engaged are the right men in the right places, nevertheless, I have in my mind an instance of a man engaged by a public body in the Midlands, to go about lecturing to amateurs and cottagers, and who even acts as judge at flower shows, who never had a month's training in a good garden in his life. That these public bodies are innocent of any intention of selecting any but the best men I quite believe, but not (in many instances) being practical horticulturists themselves, they are sometimes imposed upon by the high-sounding titles, the fulsome utterances, and assuming manners of certain applicants, instead of subjecting them to severe practical tests, in which case their ignorance would be demonstrated, and amateurs and cottagers would be saved the trouble of listening to men whose horticultural knowledge is less than their own. These remarks apply also to judging at flower shows—I mean the smaller sort of flower shows, because I know that the larger ones are managed by men of experience, and the judges chosen are experts at growing the things they are called upon to judge; but this is not always the case at the smaller shows, which are often managed by business men who have a commendable love for a garden, and are ardent supporters of horticulture—these men, I have no doubt, are sometimes unintentionally car-

ried away by the alluring title F.R.H.S., and the airy talk of would-be horticultural judges, hence the mistakes occur that I have alluded to, mistakes which, in the interest of exhibitions, it is always wise to avoid, for I know of no greater insult to exhibitors than to appoint men as judges who for lack of experience are ignorant of the good qualities or shortcomings of the exhibits which they are called upon to judge. The importance of a wise expenditure of public money, and the putting right men in the right places is my only excuse for troubling you with this epistle. *Horticulturist.* [To be a Fellow of any of the Societies, even of the Royal Horticultural Society or Linnean, does not necessarily imply anything more than that the holder of the title is presumably respectable and pays his subscription. It is not like V.M.H., or a University Degree, or a Fellowship of the Royal Society, which cannot be had for money, and which is not thought correct to use for advertising purposes in any way. ED.]

TURNER'S CRIMSON RAMBLER ROSE.—Whilst I was residing in the United States for a few months recently, I was much struck with the popularity of the Crimson Rambler Rose, it being met with more commonly there than in England, especially in the vicinity of Philadelphia. Some of the wealthy people have them planted by the roadside, and tied to the iron fences, some of which run for half a mile. The Roses are planted alternately with other climbing varieties, with here and there a Honeysuckle, and during the early summer months these fences form delightful pictures, and notice-boards are put up, asking the aid of the public in protecting the plants from injury by unscrupulous persons. The Crimson Rambler is also found on pergolas, garden arches, &c., and forms a lovely contrast to the Clematis, Bignonias, &c. The cottagers admire this Rose, and many examples of porches can be found on which it is trained; and as the cottages are usually provided with a porch over the front door, the effect is very good. *Jas. H. Blackman.*

GARDENING AT THE CRYSTAL PALACE, SYDENHAM.—I think, having regard to the great difficulties with which Mr. G. Caselton has to contend at the Crystal Palace, the condition of the grounds does him the greatest credit. Restricted as he is in both matters of means and labour, his downright British pluck and dogged perseverance have enabled him to accomplish much. The moist summer has helped him, because the natural drainage consequent upon the different levels of terraces must be great. Anyone entering the grounds from the Low Level Station can see that much has been done to make the beds round the mound on which the Rose Temple stands gay and varied. In some of the permanent beds by the sides of the main walks Mr. Caselton has made a profuse use of Delphiniums, now over. The beds of Roses, which show signs of having yielded good heads of bloom, are edged in some cases with Pentstemons, in others with Antirrhinums, both of which are very gay. It can be noticed that the Roses have developed a vigorous summer growth, which will in many cases produce a good autumn bloom. The Crimson Rambler, largely employed as a pillar Rose, is still producing blooms, and must have been laden with its crimson clusters some six weeks ago. Large bushes of the red and white forms of Rosa rugosa are still flowering and producing their large seed-vessels; flowers and seed pods alike appeared to possess a great fascination for the country folk, who had come to London for the Co-operative Festival. Beds of variegated shrubs, including representatives of the Fir-tribe, bright with tints of gold and silver, with green of varying shades. The terrace gardens were gay with flower-beds filled with a great variety of subjects. White and lilac herbaceous Phloxes were prominent; Begonias, Dahlias, Pelargoniums, &c., are employed, with other subjects too numerous to mention. In the absence of tall subjects, the terrace gardens always have a bare appearance, which detracts from the floral effects; but on the whole, and having regard to the large spaces to be planted, the general effect is decidedly satisfactory. *R.D.*

THE GREAT SHREWSBURY HORTICULTURAL EXHIBITION.—The famous Peter Bell, whose non-imaginative soul saw in a Primrose a mere flower and nothing more, has had and has myriads of fellows, and doubtless there were many such at the recent great Shrewsbury flower show, who saw in it a mere display, a sight, a spectacle, but nothing else. To me the show was far more than that, it was really a striking indication of the power of gardeners to extract from the soil with nature's aid marvellous evidences of skill, labour, patience, and enterprise, such as can hardly have been excelled anywhere. The show also evidenced the wondrous variety of gardening. Except trees and shrubs, perhaps there was little there that does not come into the gardener's wide and wondrous domain, and the huge mass of products thus brought together from all parts of the Kingdom showed unmistakeably how capable is the British gardener in his varied sphere, his situations, and his surroundings. No matter whether in plants, in flowers, in fruits, or in vegetables, the most superb examples of garden culture were there, and it was not possible to see them thus arrayed for display without realising that the gardener's art is indeed a glorious one. Take it away now, were it possible, to deprive the world of its labours and its products, and what would existence become. Gardening as an art has in Britain grown up to its present position without any governmental patronage or aid. But it does owe much to the munificence and favour of the wealthy, who have instanced and encouraged it in a way that evokes every true gardener's gratitude. Not that their support has been entirely unselfish, because in their gardens they have found the purest and sweetest of enjoyments life can bestow, and from them have they had in abundance the most perfect in beauty or in delicacy of their products. Seldom has human eye looked upon more perfect specimens of the plantsman's art, or decorative capacities, than were seen in the huge plant tent at Shrewsbury. Elsewhere were flowers in marvellous profusion, the best the season can furnish, shown naturally, or used with art to form those combinations in which the florist delights, and which his admirers so love to see and appreciate. What grand fruit products were there, and how beautifully shown! Every table, every collection, trophies of culture as of decorative art. What wondrous Grapes, said to be some 350 bunches, all so superb! Even of vegetables what a splendid display, and how generally so charmingly tabled. He must have been a strange gardener, indeed, who did not come away from Shrewsbury even more proud of his profession than he was before. *A. D.*

A DESIRABLE HALF-DOZEN OF STRAWBERRIES.—Strawberries that have given satisfaction in a bleak Norfolk garden after such a season as that just ended, have surely been given a sufficiently severe test to warrant a good recommendation from those who have had them under observation. Five of the following varieties mentioned I have noted growing in one of the bleakest spots in East Anglia, the remaining one, The Laxton, has not yet been distributed, but from what I have seen of it this appears to be the best variety yet raised. The names of its parents should almost be sufficient guarantee of its excellence—Royal Sovereign and Sir Joseph Paxton. The form and flavour are similar to Royal Sovereign, but the colour is darker, the flesh firmer, and the plant altogether is more robustly constituted. Having seen the condition of the fruit after a long journey, one can easily see that the extra firmness in the flesh is a great improvement on the popular Royal Sovereign. Growing side by side with this latter variety, it comes in about a week later. The best mid-season variety for general purposes is undoubtedly Fillbasket. Royal Sovereign also figures in the pedigree of this prolific variety; the other parent is Latest-of-All. The name is no misnomer, for it is remarkably productive. The fruit is very juicy, yet it travels well; this may be accounted for by the fact that the "seeds," instead of being prominent, are set in fairly deep basins. It forces well, and as it sets its fruit so freely, it should become very popular for late forcing. Of the many late varieties, there seems none to eclipse Trafalgar, a variety obtained a few seasons ago by crossing Frogmore Late Pine with Latest-of-All. With market growers this promises to take the place amongst the late varieties that Royal Sovereign holds amongst the earlies. The Pine-like flavour that suggested the name of the male parent is even more pronounced in the offspring. When I say that with me it ripens at the same time as Waterloo, there can be no doubt about its lateness. Mentmore, the result of crossing Noble with British Queen, has been the best main-crop. The fruit is very full, but possesses neither core nor hollows, but is all that one could desire in a perfectly-formed fruit. As in Fillbasket, the seeds are deeply set, but owing to the smoothness of the skin it does not travel quite so well. Climax, obtained from Latest-of-All, and Waterloo is another excellent late variety, with very large, smooth fruits, of a rich crimson colour. The foliage is very leathery, and this makes the variety valuable for late crops in gardens troubled with mildew. To eulogise Royal Sovereign at this date would be superfluous; it is sufficient to say that even after such a trying season as the past, it still holds its own as the king of its class, but I believe it will have to surrender this honour next year to "The Laxton." *F. J. Cole.*

A NEW EARLY-FLOWERING CHRYSANTHEMUM.—I send you some sprays of Chrysanthemum Ralph Curtis Improved. It is a sport from the free-flowering variety Madame Marie Masse, and I have grown it two seasons. It is thoroughly fixed. The plants from which the blooms were cut have been grown under the same conditions as my general market stock, and planted at the same time. It is the earliest flowering white Chrysanthemum of good constitution in cultivation, and, as the blooms travel well, should be a good market variety. *I. Godber, New Town Nurseries, Bedford, September 4.* [A white or cream-coloured variety of good size. ED.]

SHOWING SWEET PEAS.—Horticultural societies and seedsmen, by offering liberal prizes, have assisted greatly in popularising this pretty annual plant, the exhibition of which has greatly increased at meetings of horticultural societies. The object I have in view in penning this note is to ask the readers of the *Gardeners' Chronicle* for a statement of their opinion as to which is the best kind of setting to use when exhibiting Sweet Peas. Personally, I prefer their own foliage, with a few light grasses. Awards have been made to exhibits staged with a mixture of Adiantum cuneatum, Gypsophila, Asparagus, and grasses. I object to the foliage of greenhouse plants being associated with Sweet Peas, or any other hardy plant; for why should foliage of another species of plant be used when that of their own and the graceful tendrils are better suited to the purpose? *Hy. Harris, Castle Gardens, Wenvoe.*

AMARYLLIDS IN FLOWER.—It has often surprised me that none of the skilful plantsmen in England have turned their attention to showing a group of the beautiful stove and greenhouse and frame bulbs which are now in flower at one of the autumn shows. I venture to say they would be more interesting than any group of plants that could be shown in this month. Among the best now out are Vallota purpurea, Amaryllis blanda, A. belladonna Kewensis, A. b. maxima,

Hippeastrum procerum, H. hybrid Mrs. Lee, Nerine Fothergilli, Brunswigia Josephinæ, B. Cooperi, Griffinia hyacinthina, Urceolaris Clibrani×, Crinum Moorei, C. Powelli, C. Worsleyi, Zephyranthes carinata, Eurycles amboinensis, Habranthus pratensis, Hæmanthus Nelsoni, H. Catherinæ, H. magnificus. Grown without any special care, all these are now splendid plants; what would they be if half the care was given to them that is given to Grapes or Chrysanthemums by skilled gardeners! *B. J. Elwes, Colesborne.*

public parks and gardens. It is situated in the neighbourhood of Allan Ramsay's Monument, Edinburgh.

As many gardeners from all parts of the country will have paid a visit to the recent show of the Royal Caledonian Horticultural Society, it will be of interest to them and others if we give the names of the plants employed in forming the design of this bed.

The following is a list kindly furnished by Mr. McHattie of the plants employed to fill the "Coronation" bed: Antennaria tomentosa,

FIG. 69.—CORONATION BED AT FOOT OF ALLAN RAMSAY'S MONUMENT, EDINBURGH.

A CORONATION CARPET BED.

FORTUNATELY for our reputation for general good taste in garden matters, the carpet bed seems destined to disappear shortly; and no one will welcome that consummation more heartily than the gardener himself, seeing that for seven months of the year he is burdened with the care of innumerable tender and half-hardy exotics under glass, whose places could be more usefully employed. Still many of the public admire carpet-beds, and look for their appearance yearly in public gardens and parks. The example of which we give an illustration on this page, taken from a photograph, is that devised with much skill by Mr. J. W. McHattie, Superintendent of the Edinburgh

Alternanthera paronychioides major, A. p. magnifica, Agave americana, variegated and green; Centaurea ragusina, Coleus Verschaffelti, Echeveria metallica, E. m. glauca, E. secunda glauca, Pyrethrum selaginoides, Mesembryanthemum variegatum, Sedum glaucum, S. Ewersii, Lobelia King Edward, L. Brighton Blue, Iresine Lindeni, I. L. compacta.

PUBLICATIONS RECEIVED.—*Appendix to the Report of the Minister of Agriculture, Ottawa, on Experimental Farms*, 1901. The year 1901 has, on the whole, been an encouraging one for Canadian farmers. The excellent prices received for nearly all farm products during the year have helped to make up for any shortage in particular crops. . . . Nearly 50,000 farmers now receive the publications of the experimental farms, and their number is steadily increasing.

BULB GARDEN.

BURBANK'S LILY.

IT seems very unfortunate, to say the least of it, that the name of Lilium Burbanki× was given to a somewhat varied lot of seedling hybrid Liliums without the consent of the raiser, who parted with them as practically unselected plants. This quite accounts for the variation in the opinions expressed regarding this Lily, to which the Rev. D. R Williamson refers as being pardalinum, and about which he mentions what I told him about there being more than one form. There are, indeed, more than two forms, and some of these are hardly good enough to grow, though some of the best are really acquisitions. I know that Mr. Luther Burbank feels aggrieved at his name being applied to these plants; but a really good form is not unworthy of bearing such a distinguished title as the surname of the great Californian hybridiser and raiser of new fruits and flowers. The best form of L. Burbanki I know is one with apricot-coloured flowers, prettily marked with spots, and which is later in blooming than L. pardalinum or any of its rather numerous forms. As one may expect from seed-

ling Lilies of hybrid origin, some of the plants bear a greater resemblance to one parent than to the other, and there are some varieties which can hardly be distinguished from L. pardalinum. It did not occur to me until now that an examination of the bulb characters of a number of specimens of L. Burbanki × might be of interest, but I have not sufficient stock in my own garden to enable me to do this with satisfactory results. In growth, however, the best and most distinct Lilies supplied as Burbanki are quite different in appearance, in flower, and in foliage from L. pardalinum. It is well, however, to have the subject ventilated, and I am glad that Mr. Williamson has given one an opening for it by means of his recent article.

As apropos to this subject, one may refer to the offer this autumn of a variety of the hybrid L. Marhan (Martagon × Hansoni), distinguished by the addition of the varietal name Miss Willmott, and said to be a specially good form of this hybrid. How many varieties of L. Marhan × are in cultivation, and how far do they approach either of their parents? *S. Arnott, Carsethorn by Dumfries, N.B.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

SEPTEMBER 2.—*Present:* Dr. Masters, F.R.S. (in the Chair), Dr. M. C. Cooke, Dr. A. B. Rendle, Messrs. E. M. Holmes, J. Douglas, Odell, Rev. W. Wilks, and Mr. Gaut (visitor).

Phyllotaxis of Aloysia —Mr. J. W. ODELL brought specimens showing variations in the number of leaves to a whorl on different shoots. On the secondary shoots, which resulted from the pinching of the primary one, the leaves were in whorls of three.

White Lavender.—Mr. ODELL showed flowers of this variety to prove the existence of fragrance in this variety, which had been disputed.

Double spathe of Richardia Elliottiana.—Mr. DOUGLAS brought a specimen of a double spathe in this plant, in itself not an uncommon occurrence, but the spathes in the present examples were remarkable for being deeply pinnately lobed.

Helianthus Miss Mellish —Specimens were exhibited showing the decay and rotting of the root stock and stem, apparently due to fungus "sclerotia," which were found in the tissues.

Dr. COOKE undertook to report on the specimens on another occasion.

Peloria in Antirrhinum.—From Mr. LORENZ, of Erfurt, came specimens of regular flowers of this plant. The regularity in this case is owing to the increase of the irregular portions, so that there are five spurs instead of one only, and all five stamens are produced in a symmetrical manner, thus constituting it a case of irregular peloria. Mr. LORENZ has succeeded in "fixing the variation and inducing the development of a race."

Celery Leaves. — Some specimens were exhibited affected by a fungus allied to Phyllosticta or Sphærella.

Twin Cucumbers.—A specimen of this not uncommon peculiarity was exhibited. The appearance is probably due to the union of two flowers in a very early stage of their development.

Cracked Pears.—Specimens were shown showing the effect of Fusicladium in arresting the growth of the rind of the Pear, which, being unable to expand, cracks as the flesh beneath increases in bulk and exerts pressure upon it. Spraying in an early stage is the only means of preventing the mischief.

White Heather.—Mrs. STREATFIELD sent specimens of the white variety of Erica Tetralix from a Surrey common.

Silver-leaf disease.—A letter was read from Professor PERCIVAL, relating to the specimen forwarded to him from the previous meeting:—"From sections of the stump through the points of union of scion and stock, it seems very probable that the fungus which causes the disease had entered at the point of grafting in this particular case. Such examples are not at all uncommon, although in many cases the disease starts in the roots below ground. The disease, I have abundantly proved this year in my own garden, can be induced with the greatest ease by inoculating any part of the tree either above or below ground. The fungus (Stereum purpureum) does not itself extend very far in the tissues of the diseased trees, but some of its products, or products resulting from its action on the tissues of the trees, circulate rapidly in an upward direction, and induce the peculiar changes in the leaves. Downward circulation also takes place, but much more slowly. In several cases of inoculation with the fungus on long branches of plants, the disease has spread downwards even after the greater portion of the branch has been cut away at a point several inches below the point of inoculation.

Copper as a cause of Yellow Foliage.—Mr. GAUT alluded to the yellow tint assumed by the foliage of certain Apple-trees in Yorkshire. The want of green colour had been attributed to the presence of copper in the soil, but as it was considered that the evidence in support of this opinion was inadequate, further information was solicited.

Melon Disease.—Mr. WILLARD sent specimens of this disease, characterised by rotting of the bine, and attributed (conjecturally) to the presence of bacteria. Acting on a suggestion of Dr. MASTERS, Mr. WILLARD had inoculated a seemingly healthy plant with some of the juice from a diseased plant. The result was the development of disease within a very short time. The Committee, however, thought the result of the infection would not have manifested itself so rapidly, and that the inoculated plant would shortly have shown symptoms of the disease, even if it had not been inoculated. Further experiment was suggested.

HEREFORDSHIRE FRUIT GROWERS ASSOCIATION.

ON Thursday last, the 4th, the Herefordshire Fruit Growers' Association held a most instructive and enjoyable field day. The large company, numbering over 100, left Hereford by the Great Western Railway for Colwall, to view the Grovesend and Winnings Fruit Plantations, by invitation of the proprietors, the Messrs. F., S., and E. Ballard, by whom they were met at the station, and conducted over the well-managed plantations of about 50 acres.

On entering the grounds by a tramway (from a large vinegar works conducted by this energetic firm), the first thing to rivet attention was the robust health and clean appearance of a large piece of Black Currants, which is quite free from the much dreaded mite; also a plot of young Cherries, four years old from the bud, measuring quite 6 feet through, and as much or more in height—a plot of trees any grower would be quite justified in being proud of; Apples, Pears, and Plums, being also in a most flourishing state; but Apples here, as elsewhere is this district, are a light crop, with the exception of Stirling Castle and Worcester Pearmain, the trees of which are here carrying fairly good crops of very good colour and quality, especially those of Worcester Pearmain in the Winnings plantation, where 4000 free grown bushes of this first-class market variety with standards of the same planted between, are all that could be desired.

After the business of the Association had been transacted, sixteen new members were elected, and the Messrs. Ballard thanked for their hospitality, a move was made by char-à-bancs for St. James', West Malvern, under the conductorship of Mr. C. Ritchings, late Instructor for the Hereford County Council Technical Education Committee. The short time at the disposal of the Association proved most tantalising, as not one-tenth of the time necessary to get a glimpse of this garden could be spared, the features of which appeared to be a wild garden and a collection of alpines and rock plants, not as usually seen, as single plants, but in masses of scores, and in many instances hundreds of plants.

A pleasant drive over the Malverns Hill and through the town of Malvern landed the members at that veritable paradise, Madresfield Court. Thanks to Mr. Wm. Crump, V.M.H., who personally conducted the members over a good part of the grounds and all the gardens, no time was wasted.

The fruit, of course, was the centre of attraction, and the manner in which the trees are managed, no matter what form of training is adopted, proved an object-lesson which will not soon be forgotten. Apples here appeared also to have failed to a great extent, but Pears of most varieties called forth many complimentary remarks, the free-grown pyramids being in many instances very heavily cropped.

Mr. CRUMP favoured the assembly with some details as to the formation and method of working of the nursery established here for the benefit of the tenantry of the estate. Mr. CRUMP said the nursery was established upwards of twenty years ago, with the view of providing the tenantry with good trees of the best varieties for profit, which, as he said, experiment and experience had shown to have the brightest colours and be the freest croppers, and of which he mentioned Worcester Pearmain as a type. He said the stocks were raised from pips from the refuse (most) from cider fruits which were sown as soon as procurable and protected from the birds by the use of sashes, and when fit they were lifted carefully and transplanted into nursery lines, taking care of the tap root, which was brought to a right-angle with the stem (instead of shortened), and by so doing he found the trees had much better and more fibrous roots. To such an amount did this cause the production of a dense mass of fibres that usually, on lifting the trees for the tenants, he said they were quite capable of being stood upright on the roots unsupported by any other means.

The stocks were budded at about 6 inches above the ground (which distance allowed of any failures being grafted the following spring) at about three or four years old, or when of the size of a man's little finger; and the trees were fit for planting permanently at about seven years from the date of sowing the pips. He does not favour the planting of trees with a large head, but prefers vigorous young trees, which in the end would excel the older.

After a short discussion, the thanks of the meeting were accorded by acclamation to Lord Beauchamp for his courtesy and hospitality, and to Mr. Crump for his discourse, the party commenced their homeward journey. *Albert J. Manning.*

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

THE monthly committee meeting of this society was held at the Caledonian Hotel, Adelphi Terrace, W.C., on Monday evening last. Mr. C. H. Curtis presided. Five new members were elected, making seventy this year up to date. Four members were reported on the sick fund. The amount of sick pay for the month was £12 12*s.*

The annual dinner of this society will be held in the Venetian Chamber at the Holborn Restaurant on Tuesday, October 7 next, at 6.30 P.M. The Chair will be taken by Arthur W. Sutton, Esq., F.L.S., V.M.H.

ROYAL CALEDONIAN HORTICULTURAL.

SEPTEMBER 10 and 11.—The fearfully stormy weather throughout the North a week previous to the show held out but poor prospects of its being so good as it after all proved to be. As usual, trade growers helped greatly in furnishing the large floor-space of the Waverley Market. Fruit, as usual, proved excellent.

TABLES OF FRUIT.

The chief prizes offered were for a dessert-table, 10 feet by 4 feet 6 inches, decorated at the choice of the exhibitor with plants, cut flowers, or foliage, Orchids excluded. Not more than sixteen dishes of fruit were to be staged, and prizes for fruit alone were awarded, those for "decoration" being distinct. The prizes, amounting to £15, were given by the Corporation of the City of Edinburgh. There were three competitors. Mr. Dawes, gr. to J. BIDDULPH, Esq, Ledbury Park, Herefordshire, out of a total of 121 points obtainable for fruit, received 93½: and out of 23 for flowers, received 15. The fruit was very decidedly the best shown, and gained 1st prize. The decoration was rather heavy and common, and was awarded 3rd prize. That of Mr. Kidd, gr. to Lord ELPHINSTONE, Carberry, for fruit, had 93 points out of a possible 112; and for decoration 24 points, gaining 2nd prize for the fruit, and 1st prize for decorations, which were very pleasing. Mr. Smith, gr. to the Earl of STAIR, Oxenford Castle, secured 2nd prize for decoration with 17½ points; and Mr. Cairns, gr. to J. MARTIN-WHITE, Esq, Balruddey, 3rd, for fruit.

COLLECTIONS OF FRUIT.

A collection of ten dishes of fruit came next in importance. In this class there were three entries, the 1st prize going to Mr. DAWES, who staged good Grapes, fine Sea Eagle Peaches, Elruge Nectarines, Brunswick Figs, with Apples, Pears and Melons all of high-class quality. The 2nd prize was secured by Mr. Murray, gr. to Lord AILSA, Culzean Castle, Maybole, with a good lot of fruit, including Pineapples; and Mr. SMITH, Oxenfoord Castle, Dalkeith, secured 3rd prize with a nice collection.

The succeeding class was for twelve dishes of hardy fruits grown in Scotland and out-of-doors. Though the season has been altogether unfavourable to hardy fruits, the collections staged in this class showed none of the bad effects that might have been expected. Mr. Day, gr. to Lord GALLOWAY, Galloway House, Garlieston, was 1st; Mr. BINNIE, Leuchie, North Berwick, 2nd.

For a collection of orchard-house fruit, Mr. BEISANT, gr., Castle Huntly, Longforgan, was easily 1st with some grand fruit, Apples particularly so, and also Plums; Mr. JAMES DAWES was a good 2nd, and Mr. R. R. GREENLAW, 3rd.

GRAPES.

The Grape classes, one of the strongest features of the Edinburgh show, were not less strong than usual. Black Grapes were especially fine; white Grapes, and particularly Muscats, being however somewhat unfinished. For six bunches of at least three varieties there were six lots staged, Mr. T. Lunt, gr. to Captain STIRLING, of Keir, emerging the victor. He showed Black Hamburgh (two grand bunches), Madresfield Court, and fine Muscat of Alexandria. The 2nd prize was secured by Messrs. D. & W. BUCHANAN, Forth Vineyards, Kippen, with grand Grapes; and the 3rd was awarded to Mr. BEISANT.

In the next class for four bunches of distinct varieties, there was as keen a competition as in the last-named. Here again Messrs. BUCHANAN were 1st with all black Grapes; Mr. Day, gr. to the Earl of GALLOWAY, Galloway House, being 2nd, with two bunches of black and two extra clusters of Muscat of Alexandria, well finished; and Mr. JAS. BEISANT, Longforgan, 3rd. Mr. DAY had the two best clusters of Muscat of Alexandria, and Mr. LUNT the best two bunches of Black Hamburgh, and the best single bunch of the same. In single bunches the 1st for Alicante, by Messrs. BUCHANAN, were grand clusters; Alnwick Seedling, by same exhibitor, also fine; Gros Colman, by Mr. R. STUART; and Lady Downes, by Mr. MURRAY, Culzean Gardens, Maybole; and Madresfield Court, by Mr. R. GLEN.

For a black variety, other than the above, Mr. D. NICOLL was 1st; and for a white variety, not named, Mr. MATHESON, North Berwick. For a new variety, introduced since 1885, Messrs. BUCHANAN secured the 1st prize.

No Pineapples were shown for the various prizes offered, but Melons were an excellent competition, and Peaches were splendidly shown, the first prize for twelve being awarded to Mr. Robert Glen, gr. to J. H. G. GRAHAME, Esq., Larbert House, Stirling. Mr. BROWN, Dumkier, Kirkaldy, was a very good 2nd, and Mr. DAWES, 3rd.

APPLES AND PEARS

have been a very poor crop in Scotland, and the gale of the 3rd inst. destroyed quantities of them. The unstinted provision made for these in the schedule could not, therefore, be taken advantage of by cultivators to the extent they would have wished to do. For a collection of twelve sorts (open) Mr. WHITING, Credenhill, Hereford, was 1st with fine fruits. Mr. Day, gr. to the Earl of GALLOWAY, Galloway House, having 1st for a collection of Scotch Apples, wonderfully good for the season.

Of Pears, the best dishes were shown by Mr. Finlay, gr. to Count A. MUNSTER, Uckfield, Sussex, who had 1st in the open class; by Mr. Galloway, gr. to Lord WEMYSS, Gosford, who occupied a like position in the Scotch class for a collection. A very large number of single dishes were also staged.

PLANTS.

The main prize in the plant class for gardeners, was for a group arranged for effect in a circle 18 feet in diameter. Mr. A. Knight, gr. to PETER WORDIE, Esq., Lenzie, was a very good 1st; Mr. Wood (gr. to J. BUCHANAN, Esq., Oswald House), 2nd; these being the only competitors.

Several classes were devoted to Ferns, the exhibit of four exotic species from Mr. NEIL FRASER, Rockville, Murrayfield, being really fine. A number of Hardy Ferns were also shown.

For six foliaged plants, and for six in 9 inch pots, Mr. LUNT showed some good plants for the 1st prize, the same exhibitor being 1st also for two Crotons, with grand specimens. Tuberous Begonias, Fuchias, and other plants were well shown.

CUT FLOWERS.

A large number of classes were arranged for the great variety of cut flowers common at this season. The chief of these in the gardeners' section comprised twelve Gladioli; Mr. BENNET, Tweedmouth, securing 1st prize, as he did also for six spikes.

Twelve show or fancy Dahlia blooms.—Mr. THOMAS ROBERTSON was a good 1st; and for twelve Cactus Dahlia blooms the same gentleman was 1st.

Twelve bunches of Sweet Peas brought out a strong competition; A. SHACKLETON, Esq., being 1st, and Mr FOGO, Duns, 2nd; and for six bunches ditto, Mr. SHACKLETON was again 1st, and Mr. MALCOLM, Duns, 2nd.

For twelve Roses in variety, Mr. L. BLACK was 1st in a good competition; and for twelve Tea Roses, Mr. PARLANE was in the same position.

Six vases of Roses formed a nice competition, A. TODD, Esq., Musselburgh, being 1st; and Mr. SHARP, Forgan Denny, for twelve trusses of stove and greenhouse flowers, was the only exhibitor, showing a charming collection.

OPEN TO LADIES ONLY.

Prizes were offered for the most tastefully-arranged dinner-table decoration, the space allowed being 5 feet by 3 feet. Here Miss GEDDES, Murrayfield, with a light arrangement of Sweet Peas, was 1st; Miss JANE CAMPBELL, with Nasturtiums, 2nd; and Mrs. DUNCAN FOGO, 3rd.

VEGETABLES.

Vegetables in Scotland have suffered to a great extent, some of the more tender kinds having failed to grow, the show of these consequently could not be expected to be as good as usual. The chief prize in this section is for a collection of twelve kinds, and the prize went to England, Mr. GIBSON, Danesfield Gardens, Marlow, securing it with grand produce.

NURSERYMEN'S CLASSES.

Of plants, twenty-four hardy evergreen shrubs filled a corner of the market. Messrs. CUNNINGHAM, FRASER & CO., Comely Bank, being 1st; and DICKSON & SON, 2nd. Of cut flowers, Roses were an important feature.

For thirty-six blooms, Mr. HUGH DICKSON, nurseryman, Belfast, was 1st, with fresh and neat blooms; and Messrs. D. & W. CROLL, Dundee, 2nd.

For eighteen, Messrs. A. DICKSON & SONS, Newtonards, were 1st, and Messrs. CROLL were again 2nd; and for twenty-four Teas the same indefatigable rosarians secured the 1st prize.

For twelve vases of Roses, Messrs. COCKER & SONS, Aberdeen, were 1st with a charming lot; and for a collection 5 feet by 5 feet there was a good competition, Messrs. W. & R. FERGUSON being 1st, and Messrs. CROLL 2nd.

Gladiolus were grandly shown by Mr. MAIR, Prestwick, who secured 1st for thirty-six spikes.

For twelve vases of Carnations, Messrs. CAMPBELL, Blantyre, were 1st with fresh and beautiful flowers, nicely arranged; and for twelve vases of Picotees this firm was likewise 1st, as well as for twenty-four show Dahlias, large and fine blooms.

For a collection of Dahlias, shown for effect, Mr. CAMPBELL was 1st, showing mainly Cactus varieties.

MISCELLANEOUS EXHIBITS.

These are always numerous at Edinburgh, and to the reporter embarrassingly rich; it is so difficult to pass them by, but so impossible to find space for so much he would delight to mention with approval.

Messrs. SUTTON & SONS sent down one of their massive exhibits of plants, flowers, and vegetables; while from Sawbridgeworth Messrs. T. RIVERS & SON—their first appearance in Edinburgh—had a magnificent group of fruit trees in pots consisting of standard and half standard Peaches and Nectarines, a great variety of Plums, including Late Orange, and the new Gradisca Grape.

Messrs. DOBBIE & Co., Rothesay, had a specially fine arrangement of cut florist flowers; and Mr. FORBES, Hawick, a group of the same nature, very rich in new Phloxes; Messrs. LAING & MATHER, Kelso, staged a very large assortment of border Carnations, delightfully arranged in glasses; while Sweet Peas were forwarded from Mr. ECKFORD, Wem.

Double and single Begonias from Mr. DOWNIE, Beechhill, were very bright and the blooms good; Messrs. D. METHVEN & SON, LAIRD & SONS, and JOHN PHILIPS, had bright groups of plants that effectively added to the general good appearance of the exhibition.

Messrs. STORRIE & STORRIE, Dundee, staged some of their wonderful Begonias, with other nice things. Mr. IRVINE, Jedburgh, had Pentstemons, &c., for which a Bronze Medal was awarded; Messrs. CAMPBELL & SONS, Blantyre, receiving a like award for bunches of Carnations, &c. A very bright group of out-of-door flowers from Messrs. COCKER & SONS, Aberdeen, was arranged in a conspicuous position, a Silver Medal being awarded these. In addition, Messrs. RIVERS obtained a Gold Medal for fruit trees. Messrs. R. B. LAIRD & SON, a Gold Medal for a group of plants, and a Silver-gilt Medal for a group of Conifers. A Silver-gilt Medal was also awarded to Messrs. DOBBIE & Co., Messrs. SUTTON & SONS, METHVEN & SONS, and LAING & MATHER; and Silver Medals to Mr. FORBES, Mr. PHILIP, Messrs. DOWNIE, and Messrs. CUNNINGHAM & FRASER.

Awards of Merit.

The following awards were made by the Floral and Fruit Committees:—Awards of Merit to Yellow Carnation, "Lady Stewart," from Mr. J. H. CUMMING, Grantully Castle, Aberfeldy; to Redbraes Pansy from Messrs. J. GREIVE & SON, Redbraes; to a large flowered form of Chrysanthemum uligenosum named "King Edward," from Messrs. COCKER & SON, Aberdeen; to Cactus Dahlias from Messrs. CAMPBELL, Blantyre.

FIRST CLASS CERTIFICATES.

These awards were made to Dwarf Yellow Carnation, Lady Mary Fitzwilliam, from Messrs. LAING & MATHER, Kelso, and to Rose, Marchioness of Abercorn, from Mr. HUGH DICKSON, Belfast. The latter was said to be a seedling from Maréchal Niel, the colour soft tint of bronzy sulphur.

SOME VALUABLE LATE FIGS.

IN the late summer and early autumn months some very fine varieties of late Figs ripen their fruits. By late Figs I mean those which ripen off one crop only, and are not hastened by being forced over much. As regards varieties we have a varied choice, but I will only make remarks on a few of the best. To begin, we have Negro Largo, reckoned one of the most valuable varieties, but which in some gardens in this country is not always successfully grown. Many gardeners may be inclined to question its value. There can be no doubt, if the fruit is required late in the season, and the roots suitably confined in order to reduce exuberance of growth, Negro Largo is perfectly satisfactory. The best crops are obtained when this variety is grown slowly, and the roots kept under command. Then few varieties will give better crops of fruit than Negro Largo. Large trees in pots and tubs may be objected to for reasons of space, but in reality there may be no necessity to harbour trees of excessive dimensions. At Syon, plants are raised annually, and young plants are always coming on, which permits me to get rid of unwieldy pot trees, or such as need much space for their accommodation. It is, however, only fair to state that the best Fig-trees I ever saw were growing in pits made of dry brick, and afforded a top-dressing every year. These trees were remarkably fruitful, never failing to bear grandly. At certain seasons the glass-lights were removed, so as to fully expose the trees. The right sort of trees to grow where space is limited are those that can be accommodated in pots of 12 to 14 inches in diameter, and even smaller sizes of such little trees will afford good fruits, and they are readily removed from the forcing-house to others when the time comes for resting them. I have known cases of large trees of Negro Largo which have been planted in borders against the back walls of vineries, that produce much gross wood and very few fruits; and of other varieties producing only one crop a year, and that late, that were just as unsatisfactory. The only cure for this evil is the severe reduction of root space, or cultivation in tubs or large pots.

Figs should be potted firmly in good tenacious loam, with a liberal allowance of mortar rubble, charred soil, or wood ashes. Liquid manure should be applied when the fruits are developing, and ample water afforded when the soil is approaching dryness, special attention being given in this matter to trees with abundance of roots. The shoots should be stopped at the joints or break beyond. The Fig enjoys full exposure to the light, therefore the house should be very light, and nothing should be grown above or in the front of the trees, and in the case of dwarf trees they must be brought

up pretty close to the glass. From the first the trees should not be afforded much rooting space or the shoots will be long jointed and not fruitful, and the shifts should be slight. Gardeners who have no conveniences for raising young stock can purchase trees at reasonable prices; and if the trees obtained from the nursery are short-stemmed and have a crown already formed they will be ready for forcing for fruit. Mention should be made of that excellent variety, Bourjasotte Grise, which has fruits of a very dark colour internally, and very rich in flavour. This variety is a great bearer as a pot fig for late fruiting.

Another good variety is Col di Signora Bianca, which has flesh of a deep red tint, very juicy and large under good cultivation. It is specially adapted for late fruiting, and has no superior for pot culture. Most of the large dark-fleshed Figs of the Negro largo type are late fruiters, very well adapted at the least for affording late fruits. The Nebian or Grosse berta is a fine-looking late-fruiting Fig of first-rate quality and a free bearer. The flesh is of a dark-red tint and the skin of a greenish colour. Another very fine Fig is Monaco Bianco, which has globose fruit and red or nearly black flesh, juicy, and of fine flavour. This is an earlier fruiting variety than the others, but equally reliable for late fruiting if the plants are housed late or not forced. Other good late varieties are Gouraud rouge, a reddish-brown fruit of excellent quality, also the Gouraud Noir or Dr. Hogg's black Fig, a fine-flavoured fruit, excellent for pot culture. *G. Wythes.*

Obituary.

JAMES HORNBY.—The death of this well-known Yorkshire gardener after thirty-two years' service as head gardener, took place in the gardeners' cottage at Heslington Hall, near York, on Sunday, August 31. He had been out of health for some considerable time, though able to supervise the general working of the gardeners up to the last, with the aid of a bath-chair. He was attending to his duties on the Friday previous to his death, which was brought about by an insidious form of paralysis which first affected his lower limbs. The funeral took place on Wednesday, Sept. 3, in the pretty churchyard attached to the parish church, which is but a short distance from the gardens, where the greater part of his working life had been spent. A number of his confrères were present, also his late employer, Lord Deramore, and other members of the family. After finishing that portion of the burial service usually taken in churches, it was very pleasant to hear the generous tribute paid to his memory by the vicar, the Rev. F. Peel, who has been at Heslington about the same number of years as the deceased. Lord Deramore has appointed Mr. George Goodall, for some time foreman at Heslington, to fill the vacancy. *H. J. C.*

ENQUIRIES.

MATCHES.—Will some correspondent kindly say of what woods matches are made in the United States and in the Australian Colonies?

A correspondent writing under initials "G. F." enquires where information regarding the present position of the fruit-farming industry in Scotland could be obtained, and if there are any recent publications dealing with the subject, or to whom he can apply?

REDLANDS, BROADSTAIRS.

IN a delightful and sufficiently retired spot on the edge of the cliffs overlooking the sea, Captain E. H. Adcock has reared his dwelling, and being a noted amateur gardener, he has endeavoured to make the garden around it worthy of the house and the situation. He has succeeded in a very high degree, for not only are the brilliant effects of showy flowers and the more substantial produce of fruits and vegetables excellently attained, but interest is added to many of the subjects seen by reason of their having been raised on the place. With Carnations especially Captain Adcock has been very successful in raising new and good varieties, and being an old florist, his standard of excellence is a high one, so that the varieties deemed worthy to retain are of merit. The greater part is grown in pots, and the main crop has been planted out for layering; but still there was a good show on the plants remaining at the time of our visit. Selfs are the favourites, and some very good unnamed plants are on trial. Of his proved varieties, Captain Adcock considers "The Ghost," a large and perfect pure white flower, his best; Col. Walter, a rich full red; and Miss Thatcher, a glowing cherry-red, are also fine; and among the fifty or so new seedlings still in flower were many worthy representatives of most of the classes.

Formerly Captain Adcock used to be a very successful cultivator of Orchids, and from his suburban garden we frequently noted them, and published a picture of a many-flowered specimen of Cypripedium bellatulum grown by him, which has probably not been excelled. At present he does not grow Orchids, although he still confesses to a hankering after them, which will probably lead to their being again included in his collection at Redlands.

Decorative plants, such as Ivy-leaved Pelargoniums, Gloxinias, Begonias, and other plants, are well grown, and profusely flowered; Cucumbers, Peaches, and Nectarines afford good crops, and everything is kept in good order. At the present time the chief interest is in the outdoor garden, which Mr. West, the gardener at Redlands keeps in such perfect trim that the flower-beds fronting the house appear like large bouquets of flowers. The season has been a favourable one for the lawns, which are vividly green, forming an admirable setting to the flower-beds. The front and carriage drive is sheltered by banks of green Euonymus, which is the best evergreen shrub for the sea-coast, and might be planted with advantage more extensively inland. The verandah has some good Nectarines in pots, well fruited, and it is therefore a useful and ornamental adjunct; and the borders have a good show of hardy flowers, Gladiolus, &c.

Flowers at the seaside, and especially zonal Pelargoniums, have a peculiar brilliancy, and they seem to produce a larger proportion of flower and smaller leaves than when grown inland. Specially noteworthy are two varieties of Tomato grown here, named Redlands, a very fine red fruit of uniform size and perfect shape; and Redlands Golden, a similar fruit of the ordinary market size, but of a clear bright yellow colour. Both are heavy croppers, and excellent in every respect.

THE KITCHEN GARDEN.

is bounded by a wall against which a fine collection of Cordon Pears are trained, most of them being well cropped. Melons in frames are very satisfactory this year, about sixty being ready or nearly ready to cut in twelve lights; Ohio Squash is a favourite, and is well cropped; Celery is in perfect condition; the large bed of Onions uniformly of show quality; and everything else throughout the garden creditable to the owner and to his gardener who carries out his ideas of excellence.

TRADE NOTICE.

A BULB AND SEED BUSINESS.—We took advantage of an opportunity that presented itself recently to call and inspect the bulb and seed establishment of Mr. Robert Sydenham, Birmingham. It is an imposing corner building of red brick, provided with lifts, electric light, and every needful convenience. The main entrance divides the building into two parts, one part being devoted to the purposes of the bulb and seed business, and the other part to the uses of Messrs. Sydenham Brothers, wholesale and manufacturing jewellers, this department being managed by Mr. Geo. Sydenham. Mr. Robert Sydenham has no nursery grounds, though he makes extensive trials of bulbs and seeds in his own garden. His stocks are selected and purchased by him, or they are grown for him by expert cultivators under contract, by which he takes the whole of the yields. Thus, we were informed, were obtained and distributed as much as 22 cwt. or 200,000 packets of seeds of varieties of the Sweet Pea during last season.

It is interesting to hear from Mr. Sydenham how such an important business as his has now become, has been developed from a beginning of the very smallest dimensions. In 1887, he knew nothing about bulbs or seeds, and would never have had any of either to dispose of to others, if a considerable garden of his own had not needed to be furnished with them. Having, however, sold his first surplus seeds and bulbs in a profitable manner, the support of his patrons induced him to procure larger stocks each year, thus originating a business which in its infancy was conducted under very great inconveniences, but which was capable of development to a degree its founder did not imagine. Presently the makeshift arrangements for storing the stocks and conducting the business had to be abandomed, and the well-appointed premises we have mentioned already were built about four years ago. That Mr. Sydenham has obtained since 1887 the expert knowledge he now possesses of all things pertaining to seeds and bulbs, is a striking proof of his indomitable perseverance and capacity for work. He is an apostle of "method," and it is [we had almost written painfully so] observable in every detail of management.

There was already a good stock of bulbs in the store, but only a small proportion of the season's trade. Hyacinths from Holland were large in size and good, but rather later and less dry than usual, which necessitates extra care on the part of the merchant. Mr. Sydenham's building having an enormous number of windows affords the very best facilities for drying such bulbs, as a current of air may be had which is as effective as powerful fans would be. Some bulbs of L'Innocence and others measured 6 to 6½ inches in circumference. Tulips appeared large in size and very sound. Freezias were particularly fine, Snowdrops and Crocuses also, Mr. Sydenham declaring bulbs of the latter would produce from eight to ten blooms each. Narcissus and Daffodil bulbs, in addition to some of the Tulips, are obtained from Lincolnshire, Penzance and Guernsey. All of these are more satisfactory than Dutch grown bulbs, but the best of all are those cultivated in Lincolnshire, where presumably more care is employed than in Guernsey or even Penzance. The season's bulb trade, we were told, includes 200,000 Hyacinths, 600,000 Tulips, 700,000 Narcissus, 350,000 Crocuses, and 150,000 Snowdrops.

Mr. Sydenham prepares a mixture for amateurs and others to employ instead of soil, for growing bulbs in pots, vases, &c., and as much as 1,000 bags of this fibre and shell is sold in a season, it being much cleaner for the purpose than soil, and equally effective.

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period August 31 to Sept. 6, 1902. Height above sea level 24 feet.

1902. August 31 to September 6.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 31	E.S.E.	57·4	56·3	66·2	57·0	0·21	61·3	60·7	58·4	52·0
Mon. 1	S.E.	63·5	62·2	71·2	56·2	0·08	61·3	60·5	58·4	45·9
Tues. 2	S.W.	66·5	62·0	69·0	59·8	0·04	61·5	60·6	58·4	42·5
Wed. 3	W.S.W.	68·5	63·0	70·2	62·2	...	62·4	60·7	58·4	58·2
Thu. 4	W.S.W.	65·2	58·8	76·0	54·9	...	62·2	61·0	58·4	43·7
Fri. 5	W.N.W.	55·2	54·2	67·9	51·3	...	61·8	61·0	58·4	42·7
Sat. 6	N.W.	57·7	55·3	70·0	50·0	...	60·8	60·8	58·4	42·0
Means	...	62·0	58·8	70·1	54·6	Tot 0·33	61·6	60·8	58·4	46·7

Remarks.—The first part of the week was dull and wet, the latter part fine and bright. A heavy gale of wind occurred on the 3rd inst.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending Sept. 6, is furnished from the Meteorological Office:—

"The *weather* during this period was of an unsettled character generally, although some very fine intervals were experienced. Considerable rain occurred over the southern districts at the commencement of the week, and extremely heavy falls at some south coast stations, and over the western and north-western districts a few days later. Thunderstorms prevailed in many places, principally during the earlier half of the period.

"The *temperature* was higher than of late, the values ranging from 1° above the mean in Scotland, E., to 3° above in England, S. and E. The highest of the maxima were recorded on rather irregular dates, and varied from 75° in the Midland Counties, and 74° in England, E. and N.W., to 70° in Scotland, N., Ireland, S., and the Channel Islands, 69° in Ireland, N., and 67° in Scotland, W. The lowest of the minima, which were registered at the beginning of the week in the northern districts and towards its close in the south, ranged from 35° in Ireland, N., 36° in England, N.W., and 38° in England, N.E., to 45° in England, S. and Ireland, S., and to 52° in the Channel Islands. During the middle of the week the night minima over England were much above the normal values.

"The *rainfall* was very unequally distributed. In the majority of the districts it was more than the mean, the excess being unusually large in some parts of Ireland and the north and west of Scotland, and very considerable on the south coast of England. In England, N.E., the fall was very slight. The heaviest amounts were 1·83 inch at Hastings on the 2nd, 1·10 inch of which fell between 5.20 and 6.20 P.M.; more than 2 inches on the following day over the eastern half of Ireland; at Greystones, co. Wicklow, the fall was as much as 2·93 inches, at Kingstown 2·83 inches, and at Fassaroe, Bray, 2·64 inches. More than an inch fell in the west of Scotland, and as much as 2·33 inches at Glencarron.

"The *bright sunshine* was either a little below or somewhat above the normal. The percentage of the possible duration ranged from 46 in the Channel Islands, 43 in the Midland Counties, and 40 in England, S.W., to 33 in England, N.E., and to between 22 and 17 in Scotland."

THE WEATHER IN WEST HERTS.

DURING the whole of the week the day temperatures have been remarkably steady, the highest readings in the thermometer screen ranging between 68° and 71°—that is to say, from about 3° to 6° warmer than is seasonable. The night temperatures, on the other hand, have been variable, and mostly low for the time of year. On the night preceding the 7th the exposed thermometer fell to within 3° of the freezing point. The ground is at the present time about 3° warmer at 2 feet deep, and about 4° warmer at 1 foot deep than is seasonable. A small quantity of rain fell on the 2nd, but since then the weather has been perfectly fine, and percolation through the bare soil gauge has now nearly ceased. There has been lately a splendid record of sunshine. The mean duration for the last six days amounted to 8½ hours a day—making this the sunniest week since the middle of July. Since the 4th the weather has been singularly calm, the mean rate of movement of the air for the last four days being only about a mile an hour. The mornings and evenings have been somewhat humid, but in the middle of the day the amount of moisture in the air has been unusually small. *E. M., Berkhamsted, Sept.* 9, 1902.

MARKETS.

COVENT GARDEN, Sept. 11.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. ED.]

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen	2 0	2 6
Aubergines, per dozen	2 0	3 0
Beans, dwarf, per sieve	1 0	1 6
— Scarlets, bus.	0 6	1 0
Beetroots, per bushel	1 6	2 0
Cabbage, p. tally	1 6	3 0
Carrots, per doz. bunches	0 9	1 0
— bag (washed).	3 0	—
Cauliflowers, per dozen	0 6	1 0
Celery, pr. bundle	0 9	1 0
Cress, per dozen punnets	1 3	—
Cucumbers, per dozen	1 6	3 0
Endive, new French, p. doz.	1 0	—
Horseradish, foreign, p. bunch	1 6	2 0
Leeks, 12 bunches	1 0	—
Lettuces, Cos, per score	0 6	1 0
— Cabbage, per dozen	0 3	0 6
Marrows, Vegetable, dozen	0 6	1 0
Mint, doz. bunches	1 0	—
Mushrooms, house, per lb.	1 0	1 6
Onions, new, green, doz. bunches	1 6	2 0
— bag	2 6	3 0
— foreign, case	5 6	6 0
— picklers, per sieve	2 0	3 0
Parsley, doz. bun.	1 0	1 6
— sieve	0 6	1 0
Peas, English, per bushel	3 0	4 0
— bag	4 0	6 0
Potatos, per ton	60 0	80 0
Radishes, p. doz. bunches	0 6	0 9
Salad, small, punnets, per doz.	1 3	—
Shallots, per doz.	0 1½	—
Spinach, English, bushel	1 0	1 6
Tomatos, English, per doz. lb.	3 0	4 0
— Channel Ilds. per lb.	0 3	—
Turnips, new, per dozen	2 0	—
— bags	2 6	3 0
Watercress, per doz. bunches	0 3	0 6

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, English, per sieve	1 3	2 6
— Quarrendens, per sieve	4 0	6 0
— Suffields and various cookers, per bush.	3 0	4 6
Apricots, dozen	1 6	2 0
Bananas, bunch	5 0	8 0
— loose, dozen	1 0	1 6
Blackberries, peck	2 6	—
Cobnuts, per lb.	0 2½	0 3
Figs, per dozen	1 0	2 0
Filberts, per lb.	0 2	—
Grapes, new Hamburgh, per lb.	1 6	2 0
— — B., per lb.	0 4	0 8
— Alicante, lb.	0 8	1 3
— Colmars, lb.	0 9	0 10
Grapes, Belgians, per lb.	0 4	0 9
— Muscats, A., per lb.	2 0	3 0
— — B., per lb.	0 9	1 0
Lemons, per case	12 6	25 0
Melons, foreign, each	2 6	3 6
— English, each	1 0	3 0
Nectarines, A., per dozen	8 0	12 0
— B., per dozen	2 0	4 0
Peaches, A., per dozen	6 0	10 0
— B., per dozen	1 6	3 0
Pears, per sieve	1 6	3 6
Pines, each	3 0	5 6
Plums, sieve	2 6	6 0

CUT FLOWERS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Arums, per dozen	2 0	4 0
Asparagus Fern, per bunch	0 6	1 6
Asters, per dozen bunches	2 0	12 0
Chrysanthemum, various, per doz. bunches	4 0	12 0
Coreopsis, per doz. bunches	0 6	1 0
Dahlias, per doz. bunches	3 0	6 0
Eucharis, per dozen	2 0	3 0
Carnations, per bunch	0 6	1 6
Gaillardia, dozen bunches	1 0	1 6
Gladiolus, The Bride, per doz. bunches	2 0	3 0
— Brenchlyensis, per dozen spikes	1 0	1 6
— various, dozen bunches	1 0	2 0
Gypsophila, per bunch	0 2	0 4
Lilium album, per dozen blooms	1 0	2 0
— Harrisii, per bunch	2 0	3 0
Lobelia, Red, per dozen bunches	3 0	4 0
Lilium rubrum, per dozen blooms	0 6	1 6
Lily of the Valley, per dozen bunches	4 0	12 0
Marguerites, Yellow, per dozen bunches	0 6	1 6
— white, per dz. bunches	1 0	2 0
Michaelmas Daisies, per dz. bunches	3 0	6 0
Montbretias, per dozen bunches	4 0	6 0
Pelargoniums, Scarlet, dozen bunches	2 0	3 0
Phlox, per dozen bunches	3 0	4 0
Roses, Mermet, p. bunch	0 6	2 0
— red, p. dozen bunches	3 0	8 0
— various, doz. bunches	3 0	18 0
Smilax, per doz. trails	1 6	2 6
Sweet Peas, per dozen	0 9	1 6
Sunflowers, per doz. bunches	1 0	2 0
Tuberoses, per doz. blooms	0 3	0 4

PLANTS IN POTS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Adiantums, dozen	4 0	9 0
Arbor Vitæ, per dozen	9 0	18 0
Aspidistras, doz.	18 0	36 0
Asters	2 0	4 0
Campanula, per dozen	2 0	6 0
Chrysanthemum, various	4 0	24 0
Coleus, per dozen	3 0	4 0
Crotons, per doz.	18 0	30 0
Dracænas, var., per dozen	12 0	30 0
Euonymus, vars., per dozen	4 0	6 0
Ferns in variety, per dozen	4 0	30 0
Ficus elastica, per dozen	9 0	24 0
Fuchsias, per dozen	2 0	4 0
Lilium rubrum, per dozen	6 0	9 0
— album, per dozen	6 0	9 0
Palms, various, each	1 0	20 0
Pteris tremula, per dozen	4 0	8 0
— Wimsetti, per dozen	4 0	8 0
— major, per dozen	4 0	8 0

REMARKS.—Scarlet Runner Beans, Cabbage, and Cauliflowers fetch very low prices; Corn Cobs are 1*s.* to 1*s.* 6*d.* per dozen; Tomatos, French crates, 2*s.* 6*d.* to 3*s.*; Bordeaux, cases, 3*s.*; some others, according to size of package, &c.; Melons in cases fetch 7*s.* 6*d.* to 9*s.*; Worcester Pearmain Apples fetch 7*s.* to 9*s.*; Ecklinville, 4*s.*; Lord Derby, 4*s.* 6*d.*; Keswick, 2*s.* 6*d.* to 3*s.* per bushel; Pears, Hazel, 3*s.* 6*d.* to 4*s.* 6*d.*; Williams' Bon Chrétien, 5*s.* to 6*s.*; and ordinary common varieties, 3*s.* per bushel. Out-of-door Mushrooms, a few of which are very good, fetch 8*d.* per lb.; ordinary from 6*d.* per sieve. Plums, Diamonds, fetch 3*s.* 6*d.* to 4*s.*; Victoria, 3*s.* 6*d.* to 4*s.*; Pond's Seedling, 5*s.*, and 2*s.* 6*d.* per sieve or half bushel.

POTATOS.

Various samples, 60*s.* to 80*s.* per ton. *John Bath*, 32 & 34, *Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

GLASGOW, *September* 10.—The following are the averages of the prices during the past week:—Apples, American, 18*s.* to 20*s.* per barrel; English, 15*s.* to 22*s.* per cwt.; Pears, Argus Williams', 3*s.* 6*d.* to 4*s.* per case; Duchess, 2*s.* 9*d.* to 8*s.* do.; Grapes, English, 10*d.* to 1*s.* 6*d.* per lb.; do., Scotch, 9*d.* to 2*s.* 6*d.* do.; Green Gages, 4*d.* to 7*d.* do.; Raspberries, 5*d.* to 6*d.* do.; Currants, Black, 6*d.* to 8*d.* per lb.; do., red, 3*d.* to 4*d.* per lb.; Melons, 5*s.* 6*d.* to 7*s.* per case; Lemons, Naples, 14*s.* to 20*s.* per box; Tomatos, 5*d.* to 8*d.* per lb. (Scotch); do., English, 3*d.* to 6*d.* do.; do., Guernsey, 5*d.* to 6*d.* do Mushrooms, 1*s.* 3*d.* per lb.; Onions, Valencias, 3*s.* to 3*s.* 6*d.* per cwt.

LIVERPOOL, *September* 10.—*Wholesale Vegetable Market.*—Potatos, per cwt.: Early Regents, 2*s.* 3*d.* to 2*s.* 6*d.*: Kidneys, 3*s.* to 3*s.* 6*d.*; Maincrop, 3*s.* 3*d.* to 3*s.* 9*d.*; Up-to-Date, 2*s.* 6*d.* to 3*s.* 9*d.*; Turnips, 6*d.* to 8*d.* per dozen bunches; Swedes, 1*s.* 6*d.* to 1*s.* 10*d.* per cwt.; Carrots, 5*d.* to 7*d.* per dozen bunches; Onions, English, 6*s.* 6*d.* to 7*s.* per cwt.; do., foreign, 3*s.* to 3*s.* 6*d.* per bag; Parsley, 4*d.* per dozen bunches; Lettuces, 6*d.* to 8*d.* per dozen; Cucumbers, 1*s.* 3*d.* to 2*s.* 6*d.* do.; Cauliflowers, 6*d.* to 1*s.* 3*d* do.; Cabbages, 6*d.* to 1*s.* 5*d.* do.; Celery, 10*d.* to 1*s.* 9*d* do.; Peas, 4*s.* 9*d* to 6*s.* per hamper; Beans, 2*s.* 3*d.* to 2*s.* 6*d.* do.; do., Kidneys, 10*d.* to 1*s.* per peck; do., Scarlet Runners, 10*d* to 1*s.* do. *St. Johns:* Potatos, 1*s.* per peck; Grapes, English, 1*s.* 3*d.* to 2*s.* per lb.; do., foreign, 3*d.* to 6*d.* do.; Pines, English, 6*s.* each; Apples, 2*d.* to 4*d.* per lb.; Pears, 3*d.* to 6*d.* per lb.; Tomatos 2*d.* to 6*d.* per lb.; Damsons, 2*d.* per lb.; Peas 1*s.* to 1*s.* 2*d.* per peck; Cucumber, 3*d.* to 4*d.* each; Mushrooms, 6*d.* per lb. *Birkenhead:* Potatos, 8*d.* to 10*d.* per peck; Peas, 1*s.* 4*d.* to 1*s.* 6*d.* do.; Cucumbers, 2*d.* to 4*d.* each; Grapes, English, 1*s.* 6*d.* to 2*s.* 6*d.* per lb.; do., foreign, 4*d.* to 8*d.* do.; Mushrooms, 6*d.* to 1*s.* do.

CORN.

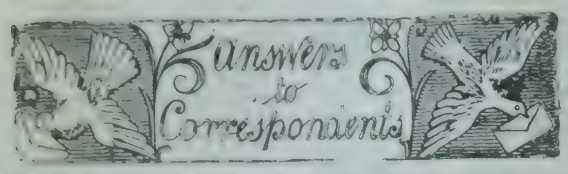
AVERAGE PRICES of British Corn (per imperial qr.), for the week ending Sept. 6, 1902, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1901. s.	d.	1902. s.	d.	Difference. s.	d.
Wheat	26	5	29	9	+ 3	4
Barley	25	1	24	6	− 0	7
Oats	17	6	19	10	+ 2	4

SEEDS.

LONDON, *Sept.* 10.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that there were but few buyers on to-day's market, with scarcely any business passing. Trifolium continues in limited request; fine samples of same are now very cheap. Meantime there is a fair sale for Winter Tares and Rye Corn. As regards Clover seeds the market is firm all round. To-day's cable advices from Toronto describe the Canadian crop as a failure For Chilian Red the tendency of values continue,

upwards; and Rye-grasses are without alteration. The demand for Mustard and Rape seed is small Turkish Canary seed, with short and dwindling stocks and bad crop prospects, is held for more money. Other Birdseeds are featureless. Some new hand-picked Blue Peas are now on sale. Full prices are asked for Haricot Beans.



*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

CORRECTION.—The writer of the article "Bastard Trenching" in our last issue, desires us to state that he was guilty of an error in the sixth line from the bottom, which should read "comminuted" instead of "commuted."

CUCUMBERS DISEASED: *D. C.* The foliage is attacked by the fungus Cercospora Melonis. See *Gardeners' Chronicle*, August 16 last, p. 128, answer to a question by "F. H."

DAHLIA SHOW. In our report of the National Dahlia Society's Dahlia Show at the Drill Hall, Mr. Seale was credited with taking the 1st prize in the class for twenty-four bunches of single Dahlias, instead of Messrs. J. Cheal & Sons, Crawley. Mr. Seale taking the 2nd prize.

DIAMOND JUBILEE AS A MARKET GRAPE: *E. H. M.* We do not know anything with certainty about this variety as regards its suitability for market purposes. If it have large size of berry and bunch, and will keep and bear carriage without injury, it would do for marketing. Flavour seems to be of little consequence.

DISEASED PINE SHOOTS: *J. C.* The galls are produced by the Spruce-gall aphis (Adelges abietis); it is very unusual, however, for this destructive insect to attack other species of Conifers. The shoots also show traces of the borings of the Pine shoot Tortrix moth (Tortrix buoliana).

FLOWERS FOR NAMING: *C. W.* Do not send more than six at any one time. Send good specimens. Pack the flowers, shoots, &c., in damp moss, surrounding very delicate flowers with tissue-paper; never use wadding, hay, or wood-wool, which may however serve as packing for fruits. Label the specimens carefully. Tin, strong cardboard, or wooden boxes are best. We assume you take the *Gardeners' Chronicle* regularly, and not for the occasion only.

GRAPE: *E. W.* Arrived in a thoroughly decayed state and unrecognisable.

GRAPES, APPARENTLY GROS COLMAN, DESTITUTE OF COLOUR SENT IN A TIN BOX: *X.* The fruit appears to have failed to colour from over-cropping this year or last, or from some other errors in culture.

HAMBURGH GRAPES NOT COLOURING: *M. P. E.* The result of over-cropping in the present and past years, probably.

HORSERADISH ON A LAWN: *Horseradish.* It can only be removed by trenching the ground and picking out every bit of root unearthed. A dressing of gas-lime, as you suggest, sufficiently strong to kill the roots might render the growth of grass or trees and shrubs impossible for years.

INSECT IN WALL PLATE OF PEACH HOUSE: *Wm. P. Roberts.* A species of Crabro, commonly known as wood or sand wasps, of which there are fifty-six different kinds. Many species make their cells in wood, boring into posts, palings, and dead trees, especially Willows. The fine wood "dust" is ejected by the insects as the process of tunnelling proceeds, and when completed, cells are formed and stored with flies, spiders, or larvæ of small moths, on which the larvæ of the wasps feed. The flies you saw being carried by the wasps are a species of Anthomyia.

LOSS OF PEA PLANTS IN THE OPEN GROUND: *Inquirer.* The ordinary Pea-mildew, Erysiphe Martii, with a little black mould, Macrosporium, on the dead leaves. Sulphur, applied early enough, is the best cure. *M. C. C.*

MANURE-WATER AND PELARGONIUM VOLONTÉ NATIONAL: *Cydonia.* We are not aware it is a fact that manure-water is a "bad thing" for this variety. None of the decorative, show, or fancy Pelargoniums are benefited by the use of much manure in the soil, or as a top-dressing, or as manure-water.

NAMES OF PLANTS: *E. W.* Celsia cretica.—*J. F. J.* 1, Athyrium filix-fœmina; 2, Onoclea sensibilis; 3, Lastrea dilatata; 2, North American, the others British. All hardy plants, but frequently raised from spores, and grown with other Ferns under glass. It is highly creditable to you that you should pursue your studies of plants, although so hard-worked. We shall be pleased to help you so far as time permits.—*Vincent.* 1, Adiantum formosum; 2, A. macrophyllum; 3, Asplenium bulbiferum; 4, A. flaccidum; 5, Lomaria Boryana; 6, Gymnogramma leptophylla; 7, Nothochlæna chrysophylla.—*E. H. M.* Odontoglossum Lindleyanum.—*Inquirer.* The Fern was completely withered, and showed no spores to facilitate indentification. There were two in the tuft. The taller probably is that known in gardens as Polypodium tenuicaule. The very small one is Pteris tremula.—*Ponica.* Two specimens of Physianthus albens and Calceolaria pinnata; but the labels were loose, and some of the specimens withered. — *J. H. F.* What you send is a leaf of the Loquat. The plant will grow in the greenhouse or orchard-house, or against a wall out-of-doors, but it rarely, if ever, fruits in this country; the name is Eriobotrya japonica.—*Peter.* 13, Hibiscus syriacus, commonly called Althæa frutex; 14, Olearia Haastii; 15, Ceanothus azureus; 16, Ligustrum sinense; 17, Colutea arborescens (Bladder Senna); 18, Spiræa callosa.—*F. E. G.* Polygonum cuspidatum.—*D. W. S.* 1, Catalpa bignonioides: 2, Polygonum cuspidatum; 3, Cacalia ficoides (the Candle Plant); 4, Polygonum Brunonis; 5, Spiræa Douglasi; 6, Retinospora squarrosa of gardens—a "sport" from Cupressus pisifera.—*J. H.* Stanhopea oculata.—*A Young Gardener.* Colutea arborescens. The Pelargonium is very brilliant in colour, but whether better than others we cannot say.—*J. C.* Hypericum Moseri.—*C. T.* Euphorbia Lathyris.—*J. P.* Pyrola rotundifolia, Lathræa squamaria.

NOTICE TO LEAVE SITUATION: *P. G. W.* In the absence of any written agreement and if no serious fault can be found, a month's notice on either side is expected, or money in lieu thereof, including rent of cottage and value of any perquisites enjoyed, such as coals, vegetables, light, &c., paid to the gardener.

PÆONY WITH BROWN SPOTS: *J. Pitts.* Pæony brown-mould, Cladosporium Pæoniæ. Described in the next part of *Journal of Royal Horticultural Society* at p. 19, and figured on plate 1, fig. 13. Spray with diluted potassium sulphide solution, ½ oz. to 1 gallon of water. *M. C. C.*

PEAR LEAVES: *A. B. W.* The work of the Pear-mite, Phytoptus pyri. Burn all the affected leaves as they fall, and try spraying with Paris Green next season early.

PLUMS SENT FOR NAMING: *J. M.* Must send fruits and shoots, with the leaves upon them, or we cannot oblige you.

SPRING-FLOWERING HIPPEASTRUMS: *A. Parry.* If they have been growing in a hot-bed, the roots will have got outside the flower-pots either by going over the rim or through the hole at the bottom, and entered the plunging materials. When growth has ceased and the leaves have begun to show signs of yellowing, all water must be withheld, and in about a month the pots should be lifted out of the bed and placed on the top of it, and left there, if that be convenient, till repotting time, February and March, comes round. In the case of bulbs grown without bottom-heat, they are usually placed on a sunny shelf in vineries, greenhouses, or a brick pit or cold frame to complete their growth, at the expiration of which period water must be withheld by degrees, not all at once, as in the case of bulbs standing in a bed of leaves or tanner's bark. You made the mistake of applying water at a time when the bulbs should have been resting, hence the start into growth. It is an easy matter by starting to force Hippeastrums (Amaryllis) into growth early in the year to have them in bloom in March and April, ripen off the bulbs, afford a decided rest for a short period, and starting them again in early autumn have them in flower in November and later in the year. This, however, involves hot-bed treatment, and was at one time commonly practised in some of the best gardens. Bulbs that were forced in this manner for one year were not again forced for two or more years.

VINE-LEAVES TURNED BROWN AT THE MARGINS: *Subscriber, Snettisham.* The malady affecting the Vine-leaves is becoming very common in vineries. See our reply to "F. H." under the title "Vine-leaves discoloured," p. 128, August 16, present year.

COMMUNICATIONS RECEIVED.—David Jones.—O. Thomas—H. W. W.—G. C. R—W. M. W.—S. T. D.—M. B, Middelburg—D. B., Paris—H. J. E.—W. W.—H. V.—Prof. Crié, Rennes—G. N.—H. J. C.—A. H.—H. J. W.—National Sweet Pea Society—J. McH.—J. W., Wirksworth—J. C.—C. T. D.—E. H.—A. J. M.—H. J. C.—G. N.—R. D.—G. F.—Bryant & May.—J. S. C., Quex.—A. H.—W. M.—W. H. C.—Ducie.—F. Roemer, Quedlinburg.—Rev. W. G.—Barr & Sons—Rev. Canon Ellacombe—Martens & Co.—H. C.—J. S.—T. W.—J. B.—A. S. H.—J. W.—O. T.—R. D.—R. R.—A. C. F.—H. W. W.—R. H. S.

CATALOGUES RECEIVED.

BULBS.

ROBT PRINGLE, 40, Belvoir Street, Leicester.
ROBT. VEITCH & SON, 54, High Street, Exeter.
JOHN RUSSELL, Richmond Nurseries, Richmond, Surrey.
W. SMITH & SON, Exchange Seed Warehouses, Aberdeen.
THOS. KENNEDY & Co., High Street, Dumfries.
WM. BULL & SONS, 536, King's Road, Chelsea, London.
DICKSONS, LTD., Chester.

COLONIAL.

JAS. CRAVEN & Co., 4, Manners Street, Wellington, New Zealand—Seeds.

BULBS AND ROOTS.

HARRISON & SON, Seed Growers and Merchants, Market Place, Leicester.

GARDENING APPOINTMENTS.

Mr. ERNEST AVERY, for three years Head Gardener at Finstall Park, Bromsgrove, Worcestershire, as Head Gardener to COWLEY LAMBERT, Esq., Little Tangley, near Guildford, Surrey, entering upon his duties on September 8.

Mr. E. BEBBINGTON, of Middle Hill Park, Worcestershire, as Head Gardener to MAURICE LEVY, M.P., Humberston Hall, Leicester.

Mr. H. ADAMS, for the past ten years Gardener at Lenton Abbey, Nottingham, as Head Gardener to Mrs. THWAITES, "Troy," Blackburn. He will enter upon his new duties on September 6.

Mr. W. J. MURPHY, until recently in the Orchid Houses at "Rosslyn," Stamford Hill, and formerly Foreman in the Orchid Houses at Hazelbourne, Dorking, to be Gardener and Orchid grower to A. G. SHENSTONE, Esq., Burleigh House, Epping.

Mr. THOMAS PALMER, until lately Gardener at Hill House, Staple Hill, Bristol, as Gardener to A. E. GILBERT, Esq., Dollisfield, Totteridge Lane, Whetstone, London, N.

Mr. A. BENNETT, late General Foreman at Hartsheath Hall Gardens, near Mold, Flintshire, as Head Gardener to E. A. KNIGHT, Esq., Wolverley House, Kidderminster.

Mr. A. BRISTOW, for the past four and a half years Foreman in the Rhinefield Gardens, Brockenhurst, Hants, as Head Gardener to Mrs. HANNEY, Worcester Court, Worcester Park, Surrey.

Mr. JAMES MCBAIN, Gardener for the last seven years with the late Mrs. LEWIS, Clynfield, South Wales, as Manager at Bristlington House, near Bristol; entering on his duties on the 22nd inst.

THE
Gardeners' Chronicle
No. 821.—*SATURDAY, SEPT.* 20, 1902.

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VEGETABLE PHYSIOLOGY.

PROFESSOR REYNOLDS GREEN'S presidential address to the botanical section of the British Association is one of the most remarkable of similar productions. It is not of such a nature that it can be profitably laid before our readers in full, as it is addressed more especially to physiologists and experts, and many of the matters brought forward for consideration are not yet in a sufficiently stable condition to be utilised for practical purposes. We may, however, allude to certain portions of the address which are of special interest to those who have to live by the growth of plants. In particular we can but endorse Prof. Green's statement of the necessity of studying most minutely what goes on in the living plant. Much information has been obtained, and mountains of statistical data have been accumulated relating to the chemical constitutions of soils, of manures, and of the cremated plant itself as grown under varying conditions. It is impossible to underrate the value of such information, but we have reached a stage where we imperatively want to know what the several elements thus proved to be introduced into the plant by the medium of the root, and of the leaf through the influence of sunlight, sunheat, and water, do in the plant itself, and how they are converted into living substance. No one will question the value of laboratory research in elucidating these matters—it is absolutely essential; but cultivators cannot at once avail themselves of the opportunities afforded by chemical and physiological research—they need quicker and more immediately practical results. They are not yet in a position to understand what is done in the laboratory, nor to appreciate the enormous future potentialities of these researches when sufficiently matured to enable them to be utilised for practical purposes. Continuous research by experts with all the means at their disposal, a more thorough training, and a more complete education on the part of cultivators, are necessities of progress. It is because other nations have been quicker and more alert to see this, that they threaten to be such formidable competitors.

In the meantime a very great deal may be done even now by the average farmer or gardener, by means of well devised comparative experiments in the garden or in the field. Every garden, every farm, to speak generally, should have a certain area set apart for careful experiment, not merely for the purpose of ascertaining whether this or that variety is the better or the more suitable for the gardener's or farmer's purpose, but for the study of the reasons why one is better than another. Is the betterment traceable to the plant itself or to the conditions under which it is grown, or to both factors? For the kind of experiment we have in view, nothing but careful cultivation, keen observation, and the power of drawing correct inferences are necessary, always bearing in mind that it is not with the mummy in a herbarium, nor the calcined skeleton in the laboratory, that we as cultivators have to do, but with the living plant. To know ourselves is good; to know what we are dealing with, be it plant or animal, is equally essential to success.

"Valuable as researches into morphology and histology are (says Prof. Green), they derive their importance very largely from the past, from the possibility of indicating or ascertaining the line of descent of living forms, and the relation of the latter to their remote ancestors. The interest thus excited seemed to him to be rather of an academic character when compared with the actual problems of present-day life, its struggles, triumphs, and defeats in the conflict for existence waged to-day by every living organism. But apart from the considerations of the claims of vegetable physiology based upon its own intrinsic scientific value, and the interest which its problems possessed for the worker himself, and upon the place accorded to it as its relationship to morphology, it must be recognised as being of fundamental economic importance, especially in these times of agricultural depression.

For many years now it had been recognised that agriculture was based upon science; that it involved, indeed, properly the application of scientific principles to the cultivation of the soil. But when they looked back upon what had passed for agricultural science since the alliance between the two had been admitted, they could not but recognise how lamentably deficient in breadth it had been. The chemical composition of the soil and subsoil had been investigated with some thoroughness in many districts of the country. The effect of its various constituents on the weight and quality of the crops cultivated in it had been exhaustively inquired into, and a considerable amount of information as to what minerals were advantageously applied to the soil in which particular plants were to be sown, had been acquired. Till quite recently the physiological idiosyncrasies of the plants round which all these inquiries centred were almost entirely ignored. No serious attempt was made to ascertain the way in which a plant benefited by or suffered from the presence of a particular constituent of the soil.

For the advance of agriculture the study of the plant itself must now be added to the study of the soil. The fact that it was a living organism, possessing a certain variable and delicate constitution, responding in particular ways to differences of environment, capable of adapting itself to a certain extent to its conditions of life, dealing in particular ways with different nutritive substances, must not only be recognised, but must be the basis for the researches of the future, which would thus supplement and enlarge the conclusions derived from those of the past, in some respects correcting them, in others establishing them on a firmer basis.

Vegetable physiology was allied very closely to other sciences, and research into its mysteries involved more than a preliminary acquaintance with them. Especially must one point out the importance, indeed the necessity, of acquaintance with a certain range of organic chemistry and with chemical methods of work. In certain directions, too, physics were as much involved as chemistry in others. Recognising the importance of work in this field, and realising that with the advent of a new century new departures must be taken, he went on to direct attention to the present position of certain problems which had long been the subjects of speculation, and which offered the prospect, if not of complete solution, at any rate of considerable advance, if investigated by modern methods."

Prof. Green then proceeded to consider the question of the nutrition of plants, beginning with the action of light on the chlorophyll, and its consequences in the formation of sugar and other carbo-hydrates. As a summary of the theories put forth on this subject, Prof. Green admits that there is little or no accurate information as to the way in which the "energy" derived from sunlight is utilised after its absorption by the chlorophyll, so that the transformations and applications of energy in the plant need much closer examination. It would occupy too much of our space to do more than allude to the relationship and attributes of carbon-monoxide, carbon-dioxide, and formaldehyde, as sketched by Prof. Green—the latter the most potent of antiseptics, but a source of sugar in the living plant.

CHLOROPHYLL AND OTHER PIGMENTS.

"Remarkably little (continued Prof. Green) was known about the chlorophyll itself. It had so far been found impossible to extract it from the chloroplast without causing its decomposition, and hence their ideas of its constitution, such as they were, were based upon the examination of something differing in some not well-ascertained particulars from the pigment itself. A remarkable relationship was known to exist between the latter and iron, for unless this metal was supplied to a plant its chloroplasts did not become green. But the condition of the iron in the plant was uncertain; it seemed probable that it did not enter into the molecule of the pigment at all.

A remarkable series of resemblances between derivatives of chlorophyll and derivatives of hæmatin, the colouring matter of hæmoglobin in the blood, had been brought to light by the researches of Schunck and Marchlewski, which was very suggestive. The same leaning towards iron was found in the two pigments, but in the case of hæmatin knowledge was further advanced than in that of chlorophyll. The iron was known to be part of its molecule. Further researches might throw a light on this curious relationship, perhaps showing that chlorophyll might enter into a combination with carbon dioxide as hæmatin did with oxygen. Such a combination might well be the precursor of the decomposition of the carbon dioxide.

There was another pigment met with in many plants, the physiological significance of which had in recent years begun to attract some attention. This was the red colouring matter, "anthocyan," apparently related to the tannins, which was developed especially in the young leaves of shade-loving plants when they become exposed to illumination exceeding the intensity which they normally encountered. The formation of this pigment was greatest in tropical plants. It seemed in some way to be supplementary to chlorophyll, for its absorption spectrum showed that it allowed all the rays useful in photosynthesis to pass through it. It was unlikely that it took any share in photosynthesis, but there was little positive information bearing upon either the formation or the function of the pigment.

Very little progress had been made with the problem of the construction of proteid matter in the plant, which still confronted them. The question of its relation to the mechanism of photosynthesis had received some attention without leading to any satisfactory conclusion. The question of the energy made use of in proteid construction was in an equally unsatisfactory condition."

A similar remark may be made with reference to the production of alcohol in plants, and its value in their nutrition—a point of the greatest importance in connection with the process of fermentation.

(To be continued.)

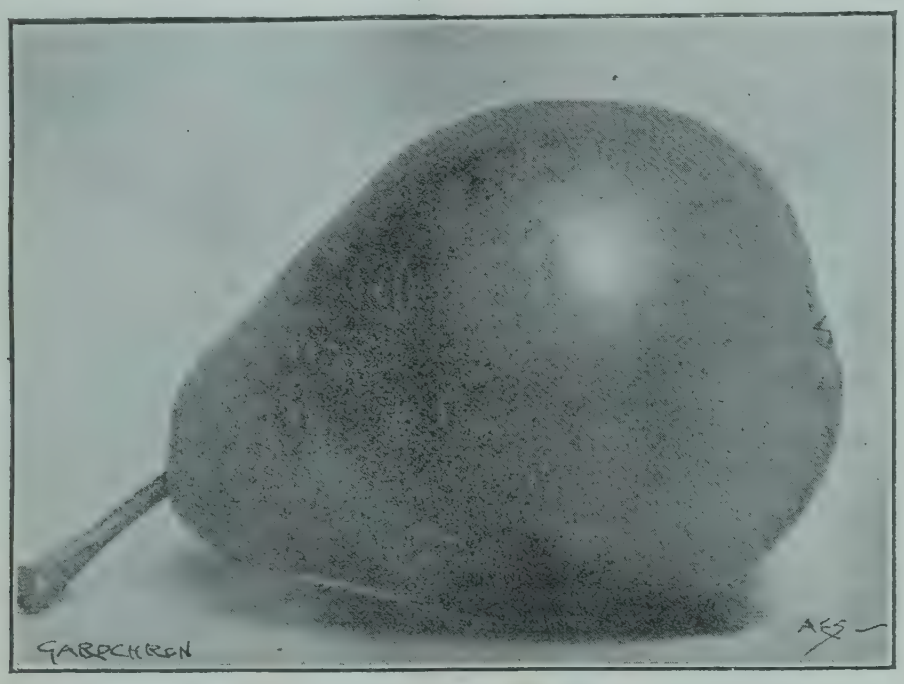

FIG. 70.—PEAR BEURRÉ ALEXANDER LUCAS.

NEW OR NOTEWORTHY PLANTS.

KALANCHOE DIVERSA, N. E. BROWN (*n. sp.*).

THIS species is a native of Somaliland, whence it was brought into cultivation a few years ago by Mrs. Lort Phillips. It appears to be allied to K. brachycalyx, A. Richard, which I have not seen, but is of much taller stature, and the pubescence is very short, not at all villose, as it is stated to be in K. brachycalyx. In general appearance it somewhat resembles K. Kirkii, differing in its more coarsely toothed leaves and differently coloured flowers. It was in flower at Kew during the spring of this year.

Stem 1½ to 2 feet high, ¼ to ⅓ inch thick, terete, glabrous up to the branches of the inflorescence. Leaves opposite, more or less deflexed, fleshy, bright shining green, not spotted, glabrous; petiole ¼ to 1½ inch long, 2 to 3½ lin. broad, channelled down the face, with subacute margins to the channel; blade 1½ to 5¼ ins. long, ¾ to 3 ins. broad, 1 to 1½ lin. thick, varying from lanceolate to elliptic-ovate, coarsely and somewhat doubly toothed. Cymes subcorymbose, everywhere, including the outside of the corolla, rather thinly pubescent with short, spreading, gland-tipped hairs. Bracteoles 1 lin. long, subulate. Pedicels 1 to 1½ lin. long. Sepals 2 lin. long, ¾ lin. broad, lanceolate, acute, free to the base. Corolla-tube 5½ to 6 lin. long, tapering upwards from an enlarged base, where it is 1½ lin. square, green; lobes spreading, 2 to 2½ lin. long, 1⅓ lin. broad, somewhat elliptic-oblong, acute, mucronate, pale vermilion-orange. Stamens 8, in two series, which are situated about 1 lin. above one another in the throat of the corolla-tube; filaments scarcely ¼ lin. long. Carpels 2½ to 3½ lin. long, gradually tapering into a very short style, green. *N. E. Brown.*

NEW CHINESE LEGUMINOSÆ.

AMONG the enormous collections of dried plants made by Dr. Henry in central and south China, and presented by him to Kew, are a great number of specimens bearing ripe fruit, and many species have thus been raised from seed in the Royal Botanic Gardens which had not previously appeared in cultivation. The two remarkable Leguminosæ described below were obtained in a living state by this means.

DESMODIUM AMETHYSTINUM, *Dunn* (*sp. n.*).*

This in a wild state is a shrubby plant, reaching 5 feet in height, and inhabiting exposed grassy slopes high up in the mountains near Szemao, Yunnan (5000 to 6000 ft.). After two years' growth from seed at Kew, it produced a panicle of amethyst-coloured flowers, and should become a handsome shrub. The other Desmodiums from the same region that have been in cultivation in this country (D. gyrans, laburnifolium, podocarpum, pulchellum, tiliæfolium, and triquetrum) are all rather inconspicuous-flowered plants. D. floribundum, the finest of the Yunnan Desmoniums, and a really beautiful shrub when in flower, has never apparently been introduced.

INDIGOFERA CAUDATA, *Dunn* (*sp. n.*).†

Like the last, this shrub occurs among the mountains of Szemao, but only in the jungle along the river banks. It is remarkable in the genus for its white flowers arranged in exceedingly long tail-like racemes, drooping over at the ends, and for the copper-coloured pubescence of its young shoots. *S. T. Dunn.*

PEAR BEURRÉ ALEXANDER LUCAS.

THIS variety of Pear is in season from December to February. The fruit is rather large, resembling Duchessé d'Angoulême in shape; the flesh somewhat melting, very juicy, vinous, sweet, and of good quality. The tree is a vigorous grower, and an abundant bearer. We are indebted to Mr. C. Jones, gr., Ote Hall, Burgess Hill, Sussex, for the opportunity of illustrating this variety (see fig. 70).

* *Desmodium amethystinum*, Dunn (sp. n.).—A D. floribundo, G. Don calyce et legumine glabris distinctæ. Frutex, 3–5-pedalis. Ramuli, petioli, foliorum paginæ inferiores, rachidesque panicularum molliter griseo-hirti. Folia trifoliolata, 6–12 poll. longa; stipulæ ovatæ, breviter acuminatæ vel acutæ, 2–3 lin. longæ; foliola subcoreacea, elliptica, 4–7 poll. longa, acuta, basi rotundata, integra, supra nitentia, læte virentia, tenuiter adpresse sericea; stipellæ minutæ. Flores 6–7 lin. longi, amethystini, paniculam terminalem formantes; pedicelli bini, graciles, subglabri, floribus breviores; bracteæ cito deciduæ. Calyx late campanulatus, pallidus, glaber, membranaceus, dentibus 4, tubo brevioribus, triangularibus, obtusis. Vexillum erectum, subplanum, rotundatum, basi in unguem brevem attenuatum, et ibi maculo luteo bifido notatum. Alæ oblongæ, carinæ fortiter adhærentes. Stamina monadelphia. Legumen glabrum, brunneum, compressum, lineare, torilosum, 8–14 lin. longum; segmenta decidua discoidea. Semina ovata, sesquilinearia. Hab. in montibus, Szemao, Yunnan, China, 5–6,000 ped. Henry, 12,614, 12,614A; in *Hort. Kew. culta.*

† *Indigofera caudata*, Dunn (sp. n.).—Ab I. galegioide, D.C. racemis longissimis distincta. Frutex 3–8-pedalis, ramulis angularibus, canescentibus, partibus junioribus cupreo-pubescentibus. Folia pinnata, 5–12 poll. longa, stipulis linearibus, ½ poll. longis, rachidi trigono, foliolis 7–9, papyraceis, supra glabris, infra pilis adpressis albis fuscisque tenuiter tectis, ovato-lanceolatis, ad 3½ poll. longis, acutis, apiculatis, basi rotundatis vel cuneatis, minute stipellatis. Racemi in medio anthesi ad 13 poll. longi, folios sæpe excedentes, apice attenuata nutante, bracteis setaceis, 3 lin. longis, deciduis. Flores 4 lin. longi; calyx 1 lin. longus, patulus, dentibus brevibus, triangularibus; corolla alba, vexillo reflexo extus pilis fuscis adpressis sparse vestito, aliter extus canescens. Legumen pubescens, cylindricum, lineare, circiter 2 poll. longum. Semina 9–14. Hab. in montibus, Szemao, Yunnan, China, 4,500–5,000 ped. Henry, 12,166, 12,166A, 12,166B; in *Hort. Kew. culta.*

PEAR DUCHESSE DE BORDEAUX, Syn. BEURRÉ PERRAULT.

In the *Fruit Manual* the fruit of this variety is described as small, 2¾ inches wide and long, Bergamot-shaped, and uneven in outline, as our illustration (fig. 71) indicates. The skin is lemon-coloured, tinged with pale brown-russet; on the sunny side, the russet tinge becomes of a dark cinnamon colour. The flesh is yellowish, tender, melting, juicy, with a rich flavour and delicate aroma, similar to that of the Seckle. It is a valuable late Pear, continuing in season from December to March. We received the photograph from which the figure was prepared from Mr. C. Jones, gr., Ote Hall, Burgess Hill, Sussex.

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM ORION var. MRS. ARTHUR WELLS.

This variety was described in the *Gardeners' Chronicle* for September 13, where it was stated to be the reverse cross of Messrs. F. Sander's original hybrid shown on July 26, 1898. Your correspondent is perfectly correct about Messrs. F. Sander placing the above cross on record at the date stated, but as he was looking up records, he might have gone a little further back, and looked up the *Gardeners' Chronicle* for February 16, 1895, where he would have found C. Orion included; and if a further record were necessary, the report of the Royal Horticultural Society's meeting at the Drill Hall on January 17, 1893, would be found to include C. Orion (concolor × insigne among the group of Orchids exhibited by Messrs. J. Veitch & Sons on that date. On February 14, 1899, Messrs. J. Veitch & Sons again exhibited this hybrid, receiving an Award of Merit, and a recorded painting will be found in the Royal Horticultural Society's collection of paintings of "Certificated Orchids." It is obvious from these records that the original name for this Cypripedium insigne and C. concolor cross must remain. There are now several lists of hybrids, together with their parentage, now in circulation, and many of these include all the crosses which appeared in issues of the *Gardeners' Chronicle* in 1895, so that there is not the excuse for duplication of names that existed previously to the 1895 issue. There can be no doubt that the list published in that year has been one of the chief aids to the more careful nomenclature of Orchid hybrids that have appeared during recent years. *H. J. Chapman.*

HEMIPILIA AMETHYSTINA.

This pretty and rare terrestrial Orchid has flowered at Tring Park with the Hon. Walter Rothschild, M.P., with whom it thrives very satisfactorily grown in a heated frame with other terrestrial Orchids. It has a single broadly-ovate, fleshy green leaf, beautifully marked with reddish-purple, and closely covering the surface of the soil in the pot, in the same manner as do most of the Satyriums. The erect raceme of flowers is about 9 inches in height, the flowers being borne on the upper half. The flowers are of peculiar construction, the lateral sepals, which are extended horizontally, and the comparatively large, spurred lip, being the effective features, the smaller odd sepal and the petals arranging themselves closely round the column so as to seem to form part of it. The flowers are white, with a green band down the middle of the lateral sepals, and rose-purple markings on the lip and under-side of the column. The singular little Satyrium marginatum and other rare species are also in flower.

ORCHIDS IN LEAF MOULD.

The article on this subject signed Ad. van den Heede, Lille, at p. 193, September 13, treats the matter as one on which there could be no controversy. It begins, "Orchids, having an objection to lime, are naturally best grown in leaf-mould deprived of lime. This is certainly the reason why these plants thrive so well in this particular soil, that has been so much advocated of late." I have no doubt that the remarks were borne out by the experience of the writer, and that they who pot in leaf-soil of proper quality, either wholly or mixed with peat, have a reasonable prospect of securing in that way as good plants as those who still keep to the old material—peat and sphagnum-moss. I have seen in different places not only excellent specimens of Orchids grown in either all or half leaf-soil, and in a few instances I have been informed that the plants have improved under the new treatment. But by far the greater number of those who have experimented with leaf-soil for Orchids in this country either entirely condemn it, or have some reservation as to the genera which it suits, and those with which it does not agree. In these particulars there is nothing approaching unanimity. Several have told me that Cypripediums soon become unhealthy if grown in leaf-soil. More than one grower has told me that he tried his Odontoglossums in it, and had to repot them into peat and sphagnum to save their lives. On the other hand, undoubtedly there are plenty of good Odontoglossums growing in leaf-soil. The chief reason of success or failure, so far as I have been able to glean is, that those who succeed are very careful waterers, and those who fail are "heavy-handed" with the water-can. Unfortunately the latter class predominates, and with a man who is in the habit of employing all his spare time in drenching his plants, it would be as easy to teach him to play a violin as to get him down to that careful, thoughtful, mode of watering necessary to secure success with leaf soil.

It is perhaps because of the necessity of profuse watering in the United States that culture in leaf-soil is either spoken of guardedly, or uncompromisingly condemned in the manner set forth by Mr. E. O. Orpet, one of America's best and most practical Orchidists, who says in *American Gardening*, August 16, p. 530: "We have tried the leaf material of various grades and obtained from different sources; and have tried it faithfully for a period of over two years, one season potting all Odontoglots in it. But they all got wet feet, the finer particles of the leaf-mould percolated downwards through the drainage, and leaf-mould was given up in disgust. Later it was tried on Cypripedes and on our seedling Lælias and Cattleyas, several dozen each of the latter being potted in it, and we have no hesitation in saying that it is the greatest "humbug" ever brought into such prominence before cultivators in the United States, and this after careful and due study and trial, with considerable loss." This disposes of the writer's lime theory, and plainly tells that leaf-mould as a material for potting Orchids in, is yet on trial. It has been tried with good, and with bad results, in this country, and it is a pity that those who have by experience arrived at a conclusion on the subject do not briefly set forth their methods and results in the *Gardeners' Chronicle* for the good of the common cause. For my part I would advise growers of small collections of Orchids, and especially such as include a large number of species from different

Fig. 71.—PEAR DUCHESSE DE BORDEAUX.

countries, to proceed carefully with their experiments; and to observe that their plants are kept on the "dry side" in the matter of water. One of the best examples of Orchid-culture in leaf-soil which I have seen, received little more water than that supplied by frequent spraying with Sander's Sprayer. *James O'Brien.*

COLONIAL NOTES.

AN AGRICULTURAL UNIVERSITY IN THE WEST INDIES.

MR. LAMONT, as we are told in the *Agricultural News*, starts with the statement that the "West Indian sugar industry is suffering not only from the effects of the bounties, but from a deeply-seated internal disease." It is pointed out that even in the sugar factories with good machinery "there has been no corresponding improvement in the management of that machinery or in the manipulation of the juice . . . in many West Indian sugar-houses that important officer, a chemist, is absent, while in others he merely accumulates a mass of figures and statistics, which are not turned to any practical account . . . there is frequently a lamentable want of co-ordination between the different departments . . . the economy of labour and the adoption of labour-saving devices . . . have hardly begun to be seriously studied."

Turning to the field, Mr. Lamont is of opinion "the case is still more deplorable." Except in a few localities "the various operations incident to the prepartion and tillage of the soil, are all performed by hand at an enormous cost . . . rotation of crops is scarcely practised . . . ratooning is still largely in vogue, and naturally diminishes the yield per acre . . . in the vital matter of the application of chemical fertilisers to the soil, there is room for the greatest improvement . . . at present they are usually applied in an utterly haphazard manner."

After reviewing the nature of the internal disease, Mr. Lamont endeavours to point out the cause:—"The West Indian backwardness is directly due to two causes: first, the abundance of labourers, working for a low wage; secondly, the extreme rarity of skilled scientific direction." It is insisted upon that "the abundance of labour has stunted the desire for, and the adoption of, labour-saving appliances, both in the field and the factory," and in regard to the absence of scientific direction, the West Indian planters are described as "having endeavoured to continue the fight against the scientists and specialists of continental Europe and the United States with a class of men whose technical knowledge is hopelessly inadequate."

The sugar (or any other) industry of the West Indies cannot be conducted without trained intelligence; indeed, without trained West Indian intelligence.

Mr. Lamont expresses the opinion that "the crying need of the West Indian Colonies is a University of Tropical Agriculture. It is an imperative necessity that their young men should be trained to take part in building up the future of their country upon the only substantial foundation, and in making their agriculture an example instead of a by-word; for in agriculture alone lies the promise of any permanent prosperity for these "British Dominions beyond the Seas."

He predicts with confidence, that if out of the germ of the "Imperial Department of Agriculture," an agricultural, mechanical, and commercial university, is evolved, not only will a large measure of prosperity be restored to the West Indies, but the bonds that unite them to the mother country greatly strengthened."

FORESTRY.

EXCURSION OF ENGLISH ARBORICULTURAL SOCIETY TO FRANCE.

CONTINUING our walk through the forest of Retz, Beech and Oak in all stages of growth were successively met with, while Hornbeam seemed a general constituent of all the younger woods. This latter tree is not encouraged more than can be helped, but it appears to be much easier to regenerate than Beech, probably owing to its seed-years being more regular and frequent. Opportunities were afforded of noting the effect of the old system of *tire-et-aire* on the growth of Oak. On the poorer localities the Beech had invariably crushed out most of the Oak during the normal rotation, but where the soil and situation were better, the Oaks had fought out the combat with better results; and some very fine sticks (mostly of Q. sessiliflora) were seen. The mature fellings are all made by the buyer, the trees being measured and stamped by the forest officers, and sold by Dutch auction, the price of Beech averaging about 6*d*. and Oak 1*s*. 8*d*. per cubic foot, or rather more than these figures by English quarter-girth measurement. The greater part of the branchwood is cut up into mètre lengths for firewood, and with a neatness not often found in English work.

One of the finest nurseries in which trees are grown for filling up blanks in the seedling areas was inspected. This was mostly stocked with Beech and Oak, several beds of the latter showing a very luxuriant growth, but appearing to have too much top for successful transplanting. The soil round this particular nursery seemed some of the best in the forest, being a finely pulverised loam, and of great depth. Some of, if not the finest examples of timber seen during the day, stood a short distance away; these were Beech and Oak of extraordinary height and size, growing on an area under regeneration, and many of them contained from 200 to 300 cubic feet of heavy timber.

Most of the party were not sorry by this time to find the carriages awaiting them in the main road, and taking our seats, we drove back to Villers-Cotteret, the road being pitched the whole distance through the forest with large square blocks of stone, serviceable and durable enough, no doubt, but very unpleasant to travel over.

The forest of Compiègne was the scene of the following day's excursion, and in this we were accompanied by the chief forest officer, M. Peiffer, and his colleagues, MM. Couttolène and Granger. The forest of Compiègne differs in several respects from that of Retz, although in both, Beech, Oak, and Hornbeam are the prevailing trees. The proximity of the palace, however, has associated the forest almost as closely with hunting and shooting, or what is known in France as *la chasse*, as with forestry. In certain respects, therefore, it more closely resembles a woodland in Great Britain than the majority of French forests, and, so far, offers an instructive object-lesson in the combination of timber-growing and game-preserving. Rabbits, deer, and wild boars are the principal kinds of game, and the effect of their existence is seen in the less regular crop of timber on the ground, and the use of wire-netting round areas of regeneration. The expense of erecting the netting is borne, however, by the lessees of the shooting, so that it does not constitute a serious item of expenditure to the forest department, as is the case in England. Another feature in Compiègne is the network of rides which radiate from centre to centre, and which render the forest a first-rate exercise ground for horsemen; while several features hereafter mentioned render it a favourite resort of tourists and picnicers.

Leaving the town of Compiègne about 9.30, we drove through the most business-like part of the forest first, inspecting various regeneration areas, patches of pure Oak, which illustrated the importance of a mixture of Beech, and receiving an object-lesson in the pruning and cleaning of young Oaks by the forest guards. Near the village of St. Jean-aux-Bois a hill was climbed on foot, from the top of which a splendid view was obtained of the surrounding country. This hill was also interesting in its containing numerous specimens of the fossils which give their name to the cerithic and nummulitic limestone of the district, and which is not represented in Great Britain. The pretty village of Pierrefonds afforded us an opportunity for luncheon, and an inspection of the renovated château originally built by Louis d'Orleans, dismantled by Richelieu in 1617, and restored by Napoleon III.

Continuing our drive by the lake of St. Pierre, a favourite haunt of the Empress Eugénie, we met with M. Danbrie, one of the heads of the Forest Department, who accompanied us for the rest of the afternoon. Returning to Compiègne by the Bronx-Mont, a hill on which a fine view of the palace is obtained, we had the finest treat of the whole day. This was afforded by the fine Oak and Beech growing on the side and base of this hill, and which owe their existence to the fact that they are regarded as of æsthetic rather than economic value now. Picturesquely grouped amongst typical forest growth, these trees allow one to judge as to what the soil and climate are capable of producing, and some idea of this may be given by specifying the dimensions of the largest (although not the tallest) Oak, named the "Chêne de la Czarine," after the Empress of Russia. Circumference at breast high, 17 feet; height to first limb, 45 feet; quarter-girth, 42 in. = 551 cub. feet; cubic content of tops, 150 feet. Total, 700 cub. feet. *A. C. F.*

(To be continued.)

FLORISTS' FLOWERS.

THE SHOW AURICULA.

THE moist, cool summer has been favourable to the development of the Auricula, as plants delighting in coolness and a fair amount of moisture, they, by their vigorous growth, appear to have revelled under conditions so favourable to their well being. They have moved along the plane of the summer, knowing but little of summer heats of previous years, which have so injurious an effect upon the plants unless they are closely and continuously looked after. It will be instructive to note if the "Primulaceous habit" in the Auricula of sending up its flowers in autumn is increased consequent upon the stately development made during the summer. The alpines in particular have done remarkably well during the period succeeding the blooming time.

Among the green edges, the "cracks" of the past blooming time were Abraham Barker (Lord), a northern flower; Mrs. Henwood (Barlow), and Shirley Hibberd (Simonite). James Hannaford (Simonite), a green edge of very fine quality when at its best, has been a little disappointing this season, and the Rev. F. D. Horner was not so good as usual.

Auriculas, apparently, have their seasons; they are influenced by conditions we do not

fully understand, and so temporary disappointments result. Mr. James Douglas, whose collection is no doubt now the best in the country, has some fine green edges of his own and others' raising, but which can scarcely be put into commerce just yet. The Rev. F. D. Horner has some also, but they now rarely appear in the south. With the exertions of Mr. Douglas of Great Bookham, and Mr. B. Simonite at Sheffield, and with Mr. Thomas Lord at work in his northern home, the flow of new varieties is not likely to dry up just yet.

The best grey edges can be looked for in George Rudd (Woodhead), which, in addition, is a good grower; George Lightbody (Headly), unsurpassable at its best; Mabel (Douglas), Marmion (Douglas), and Richard Headly (Lightbody). It is a pleasant reflection that those two noteworthy florists and fast friends should have each named the best flower he ever raised after each other. Lancashire Hero was but little seen at Auricula time, it was probably not its season; old Colonel Champneys was exhibited in a few collections, so was Douglas's Selvia and Mellor's William Brockbank, the last has a glorious golden tube and black body colour, but it is rarely shown without some defect.

Of white edges Acme (Read), Conservative (Douglas), Heather Bell (Simonite), Mrs. Dodwell (Woodhead), and Reliance (Mellor), have been seen generally in good character for the season. Add to these John Simonite (Walker), and Snowdon's Knight (Douglas), and the leading varieties are named. Mr. Douglas has two or three new white edges, which may be looked for in the spring of next year.

Of selfs, the best of those in commerce are, Black Bess (Woodhead), Negro (Mellor), Miss Barnard (Phillips), Mrs. Potts (Barlow), and Ruby (Simonite). Horner's Buttercup is a very fine yellow self, but it ranks lowest among the selfs, probably because it represents the normal colour of the flower.

The Rev. Mr. Horner has in his time raised many fine selfs, but how very few indeed have found their way into commerce! His Heroine when in perfect character is very fine, but it is apt to come shaded, which greatly reduces its value on the exhibition table. Raisers of seedlings are found stating that Heroine is of very little service as a seed parent.

The Auricula having been re-potted into fresh, sweet soil in June and in July, put on a vigorous mid-summer growth, but will soon show signs of the pause in leaf development, which comes with October. When that stage is reached the temperature becomes cooler and moister, and less water at the roots is needed. It is in late summer and autumn that rot manifests itself more than at any other season of the year. Sour soil and defective drainage combine to cause decay in the tap root.

At this season of the year, the ravages of a small grub are to be dreaded. Hiding itself on the underside of the leaves, it sallies forth to fasten itself upon the point of the filbert centre, which contains the embryo blossom of the coming season; and eating its way into it, destroys the fair promise of the spring bloom. Close watchfulness is very necessary at this season of the year; no quarter to grubs is the war cry.

Coolness, plenty of fresh air, cleanliness, a soil through which water passes quickly, and free drainage, are conditions favourable to health and vigour; a northern aspect is best from June until September runs out, but there has been so little of fierce heat and parching drought that change of position has scarcely been necessary during the summer.

R. D.

BOOK NOTICE.

THE BOOK OF THE STRAWBERRY. By Edwin Beckett. (Published by John Lane, The Bodley Head, London; and New York.)

A USEFUL manual, by a master hand, on the Strawberry, with short chapters on the Raspberry, Blackberry, Loganberry and Japanese Wineberry. It forms the ninth of the series of "Handbooks of Practical Gardening" edited by Mr. Harry Roberts. The opening chapter deals with the history of the Strawberry from early times in an accurate manner; and the chief portion of the book is devoted to matters of cultivation out-of-doors and under glass. A list of varieties is appended, which some persons may consider to be too long, but knowing the idiosyncrasies of the Strawberry as regards soil and climate, we should hesitate to omit any of the varieties, except on the score of inferior flavour. The cultivation of the plant for market receives a short chapter to itself, the methods differing in essentials very slightly from those practised in small private gardens, excepting in the use of a certain sort of plough between the rows. Estimates of cost of cultivation, as also of returns from an acre of land, are given. We were glad to observe Mr. Beckett includes Raspberry Semper Fidelis, a most abundant bearer, so acid when ripe that blackbirds and thrushes reject it, but which makes a delicious jam, having none of the mawkish flavour of that made from other varieties. The other fruits of which the manual treats are adequately dealt with.

FIG. 72.—LINDENBERGIA GRANDIFLORA.

LINDENBERGIA GRANDIFLORA.

WE give this week an illustration (fig. 72) taken from a plant shown recently at the Royal Horticultural Society by Messrs. Jas. Veitch & Sons. The plant has long been known to botanists, but has not, if we mistake not, been previously introduced into ordinary gardens, though it is more than likely it may have been grown at Kew. The plant has much the appearance of a Mimulus, the flowers having the form and the yellow colour of many of the species of that genus. It is a native of the Himalayas, and would require warm greenhouse treatment. The plant is described in Hooker's *Flora of British India* (1885), iv., p. 261.

AMHERSTIA NOBILIS.

It seems to me a matter for regret that this magnificent plant should be so rarely met with in English gardens, for with the exception of two or three places outside of Kew, it is almost unknown; and yet it is considered to be one of the most gorgeous of India's glorious flora—and surely, no one who has ever seen it arrayed in its beautiful bronze-coloured, pendulous foliage with its satin-like sheen, can fail to appreciate the beauty of such a superb object. When, in addition to this, the splendid racemes of carmine and orange blossom appear, one can appreciate the feelings which induce the Burmese to take basketfuls of its gorgeous blossoms as offerings to their deities. The comparative ease with which a plant of this species was grown and brought into bloom under my supervision at Harewood House, Leeds, has induced me to pen the following. When (my then) employer, just returned from a visit to the native country of the Amherstia nobilis, asked if I could grow it at Harewood, I replied that I would try my best, but all the same, I had my fears with regard to the result. Two difficulties presented themselves: the first was a question of temperature, and in the severe winter of 1895, when the thermometer fell to 47° in the house containing the plant, the difficulty was a real one; the second was, that a miscellaneous collection of plants, had to be grown in the same stove, and in order to keep down thrip and other pests, fumigation was necessary. This was antagonistic to the successful treatment of the Amherstia, and it was particularly unfavourable when the plant was growing, as then the young foliage is very easily injured. On the arrival of the case of twelve plants in September, 1894, only three were alive, and these were devoid of foliage, only the leaf-stalks remaining, and the prospect was not encouraging. They were put on a dung bed-frame, and lightly sprinkled overhead with tepid water, and by the following February the plants began to grow. Three separate beds were then prepared for them, two being placed in the house where they had been standing, and one on top of some hot water-pipes in a house in which Hibiscus plants were grown. These beds consisted of loam brought from different places, and except some charcoal, nothing else was used. The plant which grew the best was planted on soil taken from an old pheasant-run which had been well limed, and accordingly it was the soil of which use was exclusively made. The beds were bordered with dry bricks, and with the exception of the one in the Hibicus-house, they were enlarged as the extension of the roots rendered it necessary.

When in active growth, the plants received copious supplies of tepid water. On the roof of their house being renewed, large flagstones were placed under the beds, and the safe removal of the plants to a fernery was accomplished in the month of July, 1897. When removed to the stove, the plants made a splendid growth in the season 1898, and in the following month of March some growths were observed which differed in appearance from the others, but I did not expect these were flower-shoots, as plants of Amherstia that I had read about were some years older than these before they flowered. However, the growths developed into six flowering racemes, of which two were removed, in order not to exhaust the plant, which at that time was about 7 feet in height, and from 3 to 4 feet in diameter. When the blossoms fully developed, the plant was a sight which well repaid all the labour and care bestowed upon it. *J. Jeffrey, The Gardens, St. Mary's Isle, Kirkcudbright.*

The Week's Work.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Earliest forced Vines.—The young wood being quite mature and growth arrested for a season, the rods may be pruned, but less closely than at mid season. If they are infested with red spider and there are no other plants in the vinery, fumigate with flowers-of-sulphur, being careful to prevent the fumes passing into adjoining plant-houses. Where mealy bug infests the Vines, let the loose bark be removed. Then wash the rods with soapsuds, using a brush; and afterwards paint the rods, but not the buds, with a thin mixture of gas tar-water and clay. Let the interior of the house be cleansed with softsoap and water, adding a little petroleum to the water. Limewash or coat with oil paint all wall surfaces. Remove the surface soil, and if the roots form a net-work on the surface, the loose soil may only be removed by scraping it off with a blunt hoop. This done, sprinkle the border with bone meal and with an equal quantity of Vine-manure, covering the whole with a 2-inch layer of finely chopped fresh turfy loam. Make the same firm, and apply a thin covering of short stable litter or horse-droppings only. Should the Vine border need renovating or an addition made to it, this is the time in which to carry out such work. A new border should be 3 feet deep and wide, with a 6-inch layer of drainage materials at the bottom, and provided an outlet drain; the soil may consist of good fresh turf chopped roughly, and with it mix bone meal and Vine-manure. If it is a heavy and retentive loam, add lime rubble, and make the soil very firm by ramming it. More soil can be added yearly or less often till the border is made up to its proper width. When less radical measures are called for, the roots should be laid bare and lifted, and replaced very near to the surface with a thin layer of fine soil over them. The job being finished, keep the house very cool until a start is made at the beginning of the month of December, which is soon enough for forcing permanent Vines.

Vines raised from eyes in February and planted out in May or June of the present year, may still be encouraged, cutting away none of the young growth, for the more top-growth the more roots, and inducing a strong break next year when cut back to a point about 3 feet from the ground.

Muscat of Alexandria and other varieties.—Grapes intended for furnishing the table through the autumn and early winter not so well finished as could be desired owing to lack of heat and sunshine, should be afforded a temperature of 55° to 60° by means of fireheat, and on bright days 70° to 75°, together with plenty of ventilation. Keep the borders moist that there will be no danger of the berries shrivelling. Some dry material may be laid on the inside border to check evaporation. No pot plants should be permitted to remain in vineries containing ripe Grapes.

Earlier Vines.—If the wood is not matured on Vines from which the fruit is removed, afford a temperature by day of 70° to 80°, but keep the vinery cool and airy by night; and if the border is dry, afford water and manure-water somewhat copiously.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Propagation of Plants.—Cuttings of Calceolarias should now be taken of well-ripened and not too sappy shoots, and, after the removal of a few of the lowermost leaves, should be inserted an inch apart in sandy soil, covered with a handglass or a garden-frame, facing the west or north. Apply water once copiously, and keep close till roots form. Viola cuttings strike readily under similar conditions, or rooted side-shoots from the base of the clumps may be procured and planted in a cold-frame or prepared border, with a view to lifting them in the autumn when better rooted, and with good balls of soil, and planting them where they are to remain to flower. Gaillardias, which are exquisite flowers, and in much request for cutting, may be increased by means of cuttings inserted in a compost consisting of finely-sifted loam, leaf-soil, and sand, in about equal proportions. The cuttings, properly prepared, should be put to the number of three in a 4½-inch pot, placed in a frame or handlight, and kept close till roots form. Shoots of choice Phloxes, taken from around the sides of the plants at their base may be similarly treated, and they will form excellent plants for flowering next year.

General Remarks.—With the shortening days and genial dews at night, the grass on the lawns will for a few weeks to come grow thick and fast, and the mowing-machine and roller must be constantly at work. The same conditions which favour the growth of grass also produces plenty of weeds on the gravel-paths, and the application of a weed-killer will in many gardens become a necessity, but in others hand-weeding will suffice; the weed-killer brightens the gravel, and destroys worms, so that in that way it is better than hand-labour. In the herbaceous borders many species of plants, annual and perennial, are now over, and the former may be pulled up, the stations well manured and dug ready for the reception of spring-flowering plants and bulbs; and the flowering stems of the latter cut off, or the dead flowers and withered leaves removed. Weeds must be hoed off or pulled up by hand. Climbing Roses and other wall plants are growing very luxuriantly, and those growths that are required for next year's flowering should be made secure against the wind, and weak or superfluous shoots removed, advice which applies also to plants growing on pillars, arches, trellises, and pergolas.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Carrots.—Any of the Early Horn or Stump-rooted Carrots, if fully grown, should be lifted before the roots split, and be stored in a cellar or a cool place out-of-doors, so as to keep them fresh and plump for current use. The Horn Carrots sown early in August will now need to be thinned to a distance of 3 inches apart, the weeds drawn out of the rows, and the spaces between the latter cleared of weeds with a narrow Dutch-hoe, and a handfork or small rake.

Mushroom House.—In order to maintain a continuous supply of Mushrooms, beds must be made up as fast as the horse-droppings can be collected for them. During the autumn, the droppings from the carriage-horse stables (which is the only source from which most gardeners get their supply) are better suited for Mushroom-bed making than those collected in the winter months, when so many carriage-horses and hunters are fed with Carrots. It is advisable therefore to make arrangements for saving the droppings from the farm-horse stables. In all cases, the necessary droppings for each bed should be got together as quickly as possible, when it is less difficult to get the bulk into a proper state for making up into the bed, than it is when it takes an unreasonable time to collect the requisite quantity. Turn the bulk over about once in four days, until all rank smell is dispersed. At the final turning, to every cartload of droppings add one wheel-barrow-load of maiden loam, and well incorporate it with the bulk. The fine soil from the potting-loam heap will answer well for this purpose, and for soiling the bed. Make the beds thoroughly firm by trampling or beating them with a mallet or a brick. Where the material has been thus prepared, and made firm

when making the bed, and when there is no risk of overheating, the spawn should be broken up to the usual size (a little larger than a Walnut), and placed at about 9 inches apart under the top layer of dung, that is about 5 inches deep. Then soil the bed and insert a trial stick. Keep the house as cool as possible for the present by damping the floors, &c., and if found necessary open the outside door and ventilators at night. Clear out any of last season's beds that may have been left in the house, and clean down the walls, &c., from roof to floor by sweeping with a hair-broom, and where it is necessary apply lime-wash. If timber in any form is used for the beds, see that rotten boards are replaced with new ones.

Runner Beans.—Whilst these are plentiful, those who make a practice of salting them for winter use should secure what they require forthwith. The way in which they are preserved is simple, and considering how use ul they are for a change when variety is scarce, it is surprising how few take advantage of a glut of pods to preserve them. Slice the pods in the usual way, and place them in glazed earthenware jars, sprinkling each layer of beans with salt, and keep all perfectly air-tight by covering the lid of the jar with double sheets of brown paper. When required for use, place the beans in water for a time to rid them of some of the salt. Preserved thus, they will keep perfectly good until Seakale and forced Asparagus are ready.

Asparagus.—Young beds or plantations of Asparagus are invariably earlier in ripening-off than established beds which were cut till a late date. Cut off the ripest of these tops, and particularly those with ripening seed. Keep the beds as free from weeds as possible; and pay the same attention to the older beds as the stems ripen.

Turnips.—Thin out late sowings directly they become fit to about 4 inches apart, and thin out every alternate plant before they become crowded again. Keep the ground moved with the hoe even if no weeds are visible.

PLANTS UNDER GLASS.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Chrysanthemums.—Most of the Chrysanthemum plants should be housed in the course of the next few days, especially those from which large blooms are to be obtained, many of the finer varieties being more tender, and unable to withstand even a degree or two of frost. None of these plants should be left out-of-doors after the buds show the least sign of colour. A great deal of trouble will be saved if each plant be thoroughly sprayed with a solution of sulphide of potassium, used at the strength of half an ounce to the gallon of soft water, which may be applied without waste if the plants are laid on a raised and inclined platform consisting of sheets of corrugated zinc, under the lower end of which a length of open water spouting is fixed, so as to conduct the dressing into a tub or watering-can, to be strained and again made use of. I find this an excellent and harmless preventative of mildew on Chrysanthemums, and one more readily applied and cleaner than flowers-of-sulphur, as it leaves no apparent deposit on the leaves. This dressing should be applied out-of-doors, as it discolours painted woodwork. After housing the plants, they should be vaporised two or three times, at intervals of about a week, with Nicotine Compound, to rid them of aphis, some of which will certainly be present, and give much trouble later on if not destroyed. The change to the protection of a glasshouse requires that the plants for a few days should be afforded plenty of ventilation, and be kept as cool as possible, and the quantity of water lessened till they have become used to the new conditions. The later plants of bush form may remain out-of-doors till a later date, everything being put in readiness for taking them inside if frost should threaten.

Winter Carnations for flowering early should be housed forthwith, for the flower-buds take a considerable length of time to expand, and they develop more kindly in a suitable house than in cold frames, besides which the plants can be more easily fumigated. For a few days after housing no manure or soot-water should be afforded, although it may be applied as the flower-buds appear on plants which are well rooted. Free ventilation without running risks of cold draughts should be afforded, but no fire-heat as yet. If rust shows, apply a remedy immediately. For this I have found "Carvita" excellent.

Lilium longiflorum var. Harrisii.—The bulbs now coming to hand should be potted immediately on arrival from the nurserymen, employing one-year-old pasture loam, leaf-mould, and sand, allowing space at the top for a top-dressing being applied when roots form on the stem. This variety has degenerated greatly in quality of recent years, and those who do not need blooms till late spring will do well to depend largely on L. longiflorum, which is not only cheaper but more to be depended upon. Let the pots stand high and dry in a light pit or frame, and sinking them in screened coal-ashes.

Succulents.—Cacti and all other succulents should now be afforded much less water, and those which may be standing on the stages among other plants should be removed to a light place on a stage or shelf near the glass.

THE HARDY FRUIT GARDEN.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, East Budleigh, Devonshire.

Autumn-bearing Raspberries.—Given fine weather for a few weeks ripe fruit will be forthcoming for culinary purposes, if not for the dessert. The finest fruits in a season like the present will be obtained from stocks of which the canes were thinned severely in July. To do this admits sunshine, and aids the ripening of the fruits. Unless the birds steal the berries it is not advisable to cover the canes with nets, as to do this excludes a certain amount of sunshine and air, both being necessary for so late a crop.

The Wineberry.—Our plants of Rubus phœnicolasius are carrying a full crop of fruit this season, which is excellent in tarts or for making a preserve when grown in quantity. As soon as the whole of the fruit is cleared from the shoots, remove those shoots which have fruited this year, treating the plant like the Raspberry, and fastening the young shoots securely to their supports.

The Mulberry.—For making jelly this fruit is invaluable, and it may be used in conjunction with the common Blackberry or alone for this purpose, as also in preserves or tarts. When the fruits begin to fall they are at the right stage for cooking or eating raw. As Mulberry wood is very brittle, care must be exercised in gathering the fruit, or much damage will be done, and the stems of young trees should always be made secure to strong stakes; in fact, the tree should be planted where there is protection from the more boisterous winds, otherwise the branches will get much broken, and the symmetry of the crown spoiled.

Miscellaneous.—Let all late growths of wall fruit-trees and on those in the open be shortened somewhat, and it will be advisable to remove the whole of the mulching from around all trees forthwith, in order that the little sunheat we may get may act beneficially on the roots, and assist the growth in maturing. Borders that are caked hard from much trampling should be loosened with a digging-fork, and others stirred with the Dutch-hoe. The bush-fruit quarters and Strawberry-plots should be similarly treated, removing any late runners from the latter plants, and raking off all weeds and rubbish. Make an examination of the fruit-trees, and mark such as will require lifting or root-pruning later in the year. Where much fresh planting is in prospective, the gardener should, if possible, visit his nurseryman and choose the trees he wishes to purchase early in the autumn. Apples worked on the best kinds of Paradise stock are suitable for gardens of moderate size, where usually the size of the heads has to be restricted; and those on the crab or wilding stock for orchard planting. Pears are more satisfactory when worked on the wilding Pear stock, where the soil is light, and the rainfall not heavy; those on the Quince appearing to enjoy a deep, moist soil, though fine fruit are grown on comparatively shallow soils, but the trees do not make as free growth on the Quince as on the Pear, and often get very stunted [unless suitably top-dressed annually. Ed.].

THE ORCHID HOUSES.

By W. P. Bound, Gardener to J. Colman, Esq., Gatton Park, Reigate.

Masdevallias.—These plants should now be examined, and those which, being vigorous, have filled their pots with growths should be afforded larger pots, and others which appear to have sufficient space for the next twelve months, and are in good health and the compost unsoured, should simply have some of the stale surface material removed and fresh applied. If the compost is sour, shake out the plant and repot, and if it is weakly afford more drainage materials. Specimens exhibiting signs of decay in the centre should be divided, and the decayed portion removed; and if it is desirable to still keep the plant as a specimen, the severed portions should be placed together, working in sufficient compost between the portions as will keep the roots divided, otherwise during the repotting the roots will get pressed together into a close mass in the centre of the pot. Orchid-pots are preferable to pans in which to grow Masdevallias, and in the case of plants that require a pan of more than 8 inches in diameter, I prefer deep pans without side perforations, as by using these a sufficient depth is obtained, and they do not present such a heavy appearance as pots when standing on the stage. The rhizomes from the peat should be used as drainage materials, as these allow the roots to penetrate to the bottom of the pot in a most desirable manner. They should be chopped up small, pressed together rather firmly, discriminating the quantity necessary for the vigorous and the weakly plants. A suitable compost that is both porous and retentive, consists of fibrous peat two-fifths, chopped sphagnum two-fifths, Oak-leaf soil one-fifth. The repotting should be done firmly, and clumps of sphagnum should be pricked into the surface, so that when it grows the surface will be nearly covered. A few days after re-potting the plants should be afforded water with a fine rose water-can, and afterwards the materials should be allowed to become well dried before water is again applied. During the winter very little water will suffice to keep them in a sound state. The warmest portion of the Odontoglossum-house should be reserved for all of them, except M. Tovarensis and the hybrids derived from that species, such as M. × Hincksiana, M. × McVittiæ, which are benefited by being given a place at the cooler part of the intermediate-house. The chief points to be observed in the cultivation of Masdevallias are a sweet, buoyant atmosphere, careful application of water in autumn and winter, and a free use of the watering-can when they are growing; and to be always on the look-out for Thrips, especially in the winter, when the plants are being kept on the dry side, and when syringing would be injurious.

Eelworms.—The discovery of any means of checking this pest without injury to the plant will be hailed with delight by our cultivators. The experts of the United States department of agriculture say that the best substance to use is formaldehyde in a 1 per cent. solution, or 4 lbs. of formaldehyde to 50 gallons of water applied with a hose.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, SEPT. 22—National Chrysanthemum Society's Floral Committee Meeting at 3 P.M.

TUESDAY, SEPT. 23—Royal Horticultural Society's Committees Meeting, and National Dahlia Society's Floral Committee Meeting at Drill Hall, Westminster.

SALES FOR THE WEEK.

MONDAY, SEPTEMBER 22—
Bays, Palms, and Dutch Bulbs, at Stevens' Rooms — Dutch Bulbs at Pro heroe and Morris' Rooms, at 11. Unreserved clearance sale of Stove and Greenhouse Plants at "Monknams," Woodford Green, Essex, by Protheroe & Morris, at 12.

TUESDAY, SEPTEMBER 23—
Dutch Bulbs at Protheroe & Morris' Rooms, at 11.

WEDNESDAY, SEPTEMBER 24—
Bulbs and Lilium Harrisii at Stevens' Rooms — Dutch Bulbs at Protheroe & Morris' Rooms at 11. Sale of Greenhouse and other Plants at Oak Villa Nursery, Oakleigh Road, Whetstone, by Protheroe & Morris, at 12. Azalea Mollis, Rhododendrons. Lilium Harrisii, and Palm Seeds, at Protheroe & Morris' Rooms, at 5.

THURSDAY, SEPTEMBER 25—
Dutch Bulbs, at Protheroe & Morris' Rooms, at 11.

FRIDAY, SEPTEMBER 26—
Dutch Bulbs, at Protheroe & Morris' Rooms. at 11; Important sale of Orchids, by order of a well-known grower, at Protheroe & Morris' Rooms, at 12 30.

(For further particulars see our Advertisement columns)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —56·1°.

ACTUAL TEMPERATURES:—
LONDON.—*September* 17 (6 P.M.): Max. 61°; Min. 43°. *September* 18.—Wind light, N.W.
PROVINCES.—*September* 17 (6 P.M.): Max. 58°, Oxford; Min. 46°, Dundee.

Proposed Vegetable Exhibition.

WE are requested to publish the subjoined circular, which we understand is to be addressed to the trade. We strongly support the holding of such a show as is proposed, believing it to be highly desirable. We think, however, that the Society itself, as an independent body, should offer the prizes, and that individual members of the trade, or individual firms, should, on no pretence whatever, be allowed to offer prizes for produce grown from their seed exclusively. The Society would, no doubt, gladly receive contributions towards the general expenses of the show from trade firms, but to allow particular firms to offer prizes, to their own customers only, is to suffer them to do what ought to be done by the Society, and to lower the whole tone of the exhibition in the eyes of the public.

We do not overlook the fact that the practice has now been allowed for some years; but it is that very fact which shows how objectionable it is. If not at once abolished, as it should be, it should at least not be extended. The present system places the shows on the level of the shop-counter, legitimate enough in its way, but not appropriate to a society which has to hold the balance evenly. It is unjust to the smaller seed houses, and we trust that the Council will see that it is their business to secure as excellent and complete a representative exhibition as possible, entirely without reference to the sources whence the exhibits come. If the trade, either individually or collectively, choose to get up an exhibition of their own, and offer prizes, well and good; all we plead is, that the Society should hold aloof from exclusive trade exhibits, or should not even appear to favour particular firms because they offer prizes.

"The Council of the Royal Horticultural Society having consented to set apart one of their fortnightly meetings, at the James Street Drill Hall, Westminster, next autumn, for an exhibition of high-class vegetables, we beg respectfully, as the promoters of the same, to ask whether, subject to acceptable conditions, your esteemed firm would kindly consent to offer prizes for a class of vegetables at the said show. Our sole object is to secure for vegetables (most important of garden products) far higher recognition than they have hitherto received in London, and to that end we wish to see at least one such exhibition held under the auspices of the Royal Horticultural Society annually, and alternately for late vegetables in September, and for early ones in July. The Council will not offer prizes; hence we are compelled to invite the kind co operation of the seed trade. We do not wish for high prizes or large classes, but one at least to be fully comprehensive should include eighteen kinds, others being for twelve, nine, and six; also several classes for single dishes, and especially a class for salads. We would also desire to see one or two open classes for cottagers' vegetables. We think that there will be ample space in the present Drill Hall, not only for such classes as are named, but also round the sides for collections of choice vegetables, within rigidly prescribed limits, exhibited by firms contributing prizes. Such collections should greatly help to create a remarkably representative display of vegetables. It is needful, however, clearly to intimate that the Council of the Royal Horticultural Society offer strong objections to some of the conditions usually imposed in schedules in connection with trade prizes, and to overcome these objections and thus enable what should be an unique display of vegetables to be held in London annually, we respectfully submit that each firm or seedsman offering any prizes be content to require that competitors for the same 'must be their customers.' Such condition we think should be regarded as sufficient, and quite unobjectionable. As the Council's arrangements for the ensuing year are now in course of preparation, and in which publication all vegetable prizes and classes will be inserted, we ask you kindly to favour us with an early reply. *Edwin Beckett, Aldenham House Gardens, Elstree; Alexander Dean (Hon. Sec.), 62, Richmond Road, Kingston-on-Thames.*"

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committees of the Royal Horticultural Society will take place on Tuesday, September 23, in the Drill Hall, Buckingham Gate, Westminster, at from 1 to 5 P.M. A lecture on "Some lesser-known Japanese Trees and Shrubs," specimens of which will be exhibited, will be given by Mr. JAMES H. VEITCH, F.R.H.S., at 3 o'clock.—At a general meeting of the Royal Horticultural Society held on Tuesday, September 2, thirteen new Fellows were elected, making a total of 898 elected since the beginning of the present year.

DAHLIA, KING EDWARD VII.—Messrs. CANNELL send us a flower of this handsome new variety raised by them. The flower is of large size with numerous radiating florets of a brilliant rosy crimson. The habit is said to be dwarf, and free flowering, and holding its head well above the foliage. Will be a notable addition to this selection.

THE LEAFAGE OF THE LIME AT THE BANK.—In Mr. MAWLEY'S valuable *Report on the Phenological Observations for* 1901 is given a table showing the earliest and latest appearance of the leaf on certain Lime-trees in the garden of the Bank of England, and the earliest and latest periods of complete leaflessness during fourteen years—from 1888 to 1901 inclusive. The earliest appearance of the first speck of green was on March 14, 1893; the latest on April 20, 1888. The earliest date for complete defoliation was October 17, 1896; the latest, October 31, in 1895.

CASIMIROA EDULIS.—Sir THOMAS HANBURY obligingly sends us a fruit of this Mexican Aurantiad. It is of the size of a small Apple, with a sweetish taste. It is cultivated in Mexico for its fruits, although its seeds are reputed to be poisonous. Sir THOMAS has had the tree at La Mortola for over thirty years, but this is only the second occasion on which it has yielded fruit, so that unless it behaves differently under other circumstances it is hardly to be recommended for adoption. The plant was figured in our columns in 1877, vol. viii., p. 465; and again in 1893, vol. xiii., p. 393.

GREEN PHLOX.—Messrs. BARR & SONS have submitted to our inspection a Phlox in which all the flowers are of green colour. The calyx consists of five one-nerved sepals; the corolla is made up of five obovate petals, tapering to a stalk, free or nearly so at the base, green, with petalline venation. The five stamens are normal, but in place of the pistil, is a second flower having the same structure as the primary one. Technically, the corolla is "virescent," and the flower subject to "median prolification." Under the head of "virescence" are included those cases where the parts of the flower remain, as in this instance, of a green colour, but are not materially altered in form. When the form is altered so that the petals are replaced by true leaves, leaves not only in colour but in form also, the term "phyllody" is used. It is interesting to note in this case that the anthers are unaffected. With their production one stage of growth seems to have been accomplished, and when development was renewed, it was in the form, not of the pistil, but of a second flower-bud. We have green Roses, green Strawberries, green Dahlias, green Chrysanthemums, and many other "green" flowers, but the structure is by no means the same in all, in spite of the identity in colour. The question arises whether this simpler condition of the Phlox is a reversion to a more primitive state in which Phloxes were polypetalous, instead of as now gamopetalous.

COMPLIMENT TO MR. J. R. CHARD.—Recently a number of gentlemen connected with philanthropic and other societies at Stoke Newington and Stamford Hill, organised a Smoking Concert by way of a compliment to Mr. J. R. CHARD, the well-known decorating florist of Stoke Newington, in acknowledgment of the assistance he had rendered to many of the societies by way of furnishing floral decorations on the occasion of anniversaries, &c. The concert was well attended, and a hearty vote of thanks was passed to Mr. CHARD for his valuable aid on such occasions.

SENECIO CLIVORUM, HARDY CHINESE PERENNIAL: SHOWN BY MESSRS. VEITCH, CHELSEA.

BAMBOO FOR PAPER-PULP.—Some time since it was reported from Canada that an American Pulp Trust had been organised for the purchase of an enormous extent of Canadian forest land, on which to erect all the necessary machinery for the production on a grand scale of wood-pulp for the making of paper—that in fact the purchase had been made, and that soon a "great corner" would monopolise the business. Whether this be exactly correct or not, there can be no doubt that an extension of the field whence pulp may be drawn would be an advantage, as well as a check to "Trusts;" and it is pleasant to record that inquiries have been made of the Government of Trinidad respecting the possibility of obtaining Bamboo in quantities large enough to warrant the establishment of a factory in the Colony for the production of pulp. At present, immense areas in Trinidad are occupied by the Bamboo, and these could be almost indefinitely extended if pulp from this plant came into general demand. There is no doubt whatever that, if a factory was established in or near Port of Spain, a practically unlimited supply could be obtained within a radius of five or six miles.

GERMINATION OF SEEDS.—At the recent meeting of the Botanical Section of the British Association, Dr. H. H. DIXON, explained experiments that had been made to test the resistance of seeds to high temperatures. He said that before exposure to the high temperatures, the seeds were either desiccated over sulphuric acid, or dried in an oven the temperature of which was gradually raised to 90° C. After desiccation they were exposed for at least one hour to the higher temperature. After exposure, they were sown on moist sand. The seeds of any one species showed considerable individual differences in their power of resisting high temperatures. Thus a large percentage of a sample of seeds, say of Avena sativa, would germinate after exposure to a temperature of 100° to 105° C., while only a very small percentage would germinate if exposed to 118° C. The time needed for germination was increased by exposure to temperatures near the maximum. In a general way the higher the temperature to which the seeds were exposed, the longer would be the period of germination. Long exposure to a comparatively low temperature might prove more fatal than a short exposure to a high temperature. Thus, seeds which would germinate successfully after one hour's exposure to 110° to 120° C., would not germinate after twelve days' exposure to a temperature of 95° to 97° C.

THE RECENT HAILSTORM IN KENT. — We learn from Messrs. BUNYARD & Co., of Maidstone that they were fortunate in escaping all injury in their nurseries at Maidstone and Allington on the occasion of the hailstorm on the 10th inst., when hop gardens, orchards, and gardens at Teston and neighbourhood, were so fearfully laid waste. Rain, however, fell to the depth of 1½ inch in the course of an hour, but no damage was done.

YORKSHIRE NATURALISTS' UNION. — The 169th meeting will be held at Egton Bridge for a fungus foray in Arnecliffe Woods and other portions of Eskdale, from Saturday to Thursday, September 27 to October 2, 1902. The usual arrangements are made for through return tickets to Egton Station; those taken on Friday, Saturday, Sunday, Monday, Tuesday, or Wednesday, being available for return any day up to Thursday, October 2. Headquarters will be at Mrs. BARKER'S, Esk Villa, Egton Bridge, viâ Grosmont, R.S.O. Terms, 6s. per day, including breakfast, dinner, bed, and attendance. The accommodation is very much in demand, and those intending being present must communicate with Mrs. BARKER immediately. The house being not far off the station, luggage can be easily taken across. The mycologists present will arrange their own routes and investigations from day to day, and will leave at headquarters or at Egton Station information as to their whereabouts for the benefit of members coming over to join them on any particular day. The Hon. Secretaries are W. DENISON ROEBUCK, 259, Hyde Park Road, Leeds; and E. HAWKESWORTH, Goodman Street, Hunslet, Leeds.

THE "NATURAL HISTORY OF PLANTS."—The publication by Messrs. BLACKIE & Co. of the new edition of the "Natural History of Plants," by Professors KERNER and OLIVER, is proceeding, three parts being already issued. We need here merely repeat that illustrations and letterpress are alike excellent, and the book will be most valuable for future reference. The edition will be completed in sixteen monthly parts.

GRAPE CORNICHON BLANC, OR FINGER-GRAPE.—In the *Bulletin d'Arboriculture*, &c., of Ghent, for August, we find a coloured illustration of a very curious Grape grown for ornamental purposes. The berries are nearly 2 inches long, ¾ in. wide, oblong, obovoid, slightly curved, greenish-yellow. It is a very old variety, the history of which is given by M. RODIGAS, who assigns an Arab origin to it, and tells us that it was mentioned six centuries ago by an Arab author.

PUBLICATIONS RECEIVED.—*Clouds and Weather Signs*, by Cammander Wilson-Barder, R.N.R. This is illustrated with photographs showing wonderful cloud effects, from the study of which it is hoped that correct forecasts of weather may be obtained. The pamphlet is published from *Knowledge* Office, 326, High Holborn.—*The Ceylon Handbook and Directory*, compiled and edited by J. Ferguson. A useful catalogue of professional and commercial addresses in the Colony.—*Report on the Botanical and Afforestation Department, Hong Kong*, for 1901. Among particulars of routine work of the Department we find incidental reference, by Mr. Charles Ford, Superintendent, to the planting of Eucalyptus as a protection against malaria, and the opinion that these trees should be used with caution, as they afford cover for many mosquitos.—*The Journal of Agriculture of Victoria*, July. Contents: Impressions of Victoria from an Agricultural Point of View, S. W. Wallace; Export of Fruit-pulp; Victorian Fruit in London; Black Rot of Fruit, and numerous notes concerning the live-stock and dairy. — *The Queensland Agricultural Journal*, July, contains reports of the Agricultural Conference held at Toowoomba last June and various notes, answers to correspondents, &c.—*The Nature Study Journal* No. 5, published by the South Eastern Agricultural College, Wye, Kent. This gives an account of the good and satisfactory work done in the Chislehurst Road School, Orpington, of the School Observatory, and of the Evening Continuation School. Practical natural history lessons, properly given are immensely more valuable than mere text book lore.—*Annual Administration Report of the Government Botanic Gardens and Parks, the Nilgiris* (Government of Madras), July. A record of industry and of enterprises undertaken successfully in spite of varying weather, and in places of unsatisfactory soil. — Ontario Agricultural College, Bulletin 123. *Cold Storage of Fruit*, by J. B. Reynolds and H. L. Hutt. — *Bollettino Tecnico della Caltivazione dei Tabacchi*, pubblicato per cura del R. Istituto Sperimentale di Scafati, Salerno. — From the University College, Reading: *Third Annual Report on the Soils of Dorset*, by Douglas A. Gilchrist and C. M. Luxmoore; also *Prospectus of Instruction in Horticulture for Men and Women*.—Guernsey Growers' Association's Year-Book, 1902. The Annual Report for 1901 is unfavourable, not merely owing to the death of Queen Victoria and the continuance of war, but because of competition. "There is as fine fruit exported from our island as is to be found of its kind anywhere, but owing to the majority of what is exported being badly packed, badly graded, or not graded at all . . . can we be surprised at the bad name and the bad prices that our fruit obtains?" It is the old story of foreign competitors being encouraged by the carelessness of native labour. English produce also vies with that from Guernsey, as far as British markets are concerned.—*The Agricultural Gazette of New South Wales*, July. Contents: Useful Australian Plants, Eucalyptus punctata and Diplachne loliiformis, J. H. Maiden; a new Edible Tuber (Coleus Coppini), by Edward Heckel, &c.—From the U.S. Department of Agriculture, Bureau of Plant Industry, Bulletin No. 16, *A Preliminary Study of the Germination of the Spores of Agaricus campestris and other Basidiomycetous Fungi*, by Margaret C. Ferguson. Division of Entomology, Bulletin No. 33, *Some Insects Injurious to Crops*, by F. H. Chittenden; and Bulletin No. 34, *Principal Insects Liable to be Distributed on Nursery Stock*, by Nathan Banks.

SENECIO (LIGULARIA) CLIVORUM AND ITS ALLIES.

THE genus Ligularia has been comprised within Senecio by Maximowicz, Franchet, Bentham and Hooker, &c., but it has been revived by Hoffman. As a matter of convenience, in such a huge unmanageable genus as Senecio, any group that can easily be separated is worth naming separately. Franchet has written an exhaustive monograph* on Ligularia and its nearest allies, and while he reduces them all to Senecio, he distinguishes them as sub-genera in the following way:—

The sub-genus *Ligularia* includes species of Senecio, of which the heads are often large, few-liguled, rarely discoid, and having only one or two bracteoles at their base.

Senecillis are Ligularias with a short aigrette on the achenes, sometimes almost wanting; and the hairs are sometimes connate at the base.

Cremanthodium are Ligularias with heads normally solitary, often large, discoid, or ligulate.

In the following remarks on Senecio clivorum and allied species, I shall give the names that are correct under both Senecio and Ligularia.

I. LIGULARIA CLIVORUM (*Maximowicz*), OR SENECIO CLIVORUM (*Maxim.*) [see Supplementary Illustration in the present issue. ED.].—This fine plant has been recently introduced into cultivation by Messrs. Veitch, by whom the specimen from which our illustration was taken was exhibited. It is a native of western and central China and of Japan, where it occurs as a tall herbaceous plant in open, moist, grassy spots on the mountains, occasionally also being found in woods. It comes into flower about the end of July. It is a tall, vigorous, succulent perennial herb, attaining 3 feet high; it is beset with a short, somewhat bristly pubescence on the petioles, and on the midribs and nerves of the leaves underneath. On the inflorescence the pubescence is cobwebby. The leaves are thick and succulent. The radical leaves are mounted on long simple petioles and are reniform or cordate reniform in outline, some 12 or 15 inches broad. The margin is dentate, each tooth having an awn. The cauline leaves become gradually smaller, but remain reniform in shape, and their petioles are broadly sheathing and amplexicaul. Above are bract-like leaves, subtending the inflorescence and its branches. The leaves are always flabellately five-nerved. The flowers are in loose corymbs, about 10 or 12 heads. Some distance below the heads on the peduncles are filiform bracts, which are occasionally absent. The heads themselves are unprovided with accessory bracts. The heads are 4 inches across, orange-yellow, and many-flowered. The involucre is turbinate, made up of one series of 10 or 11 oblong phyllaries, acute at the apex and scarious on the margin. The tubular florets are very numerous. The ligules are about 12 in number, linear-oblong and have two or three sharp teeth at the outer end. The ligules are patent, so that a wide gap occurs between each contiguous pair; two principal nerves run from the base to apex, but several fainter intermediate ones can be traced. The pappus is reddish, and the achenes are glabrous.

This plant has been confused in herbaria with Ligularia Hodgsoni of Hooker, and the preceding detailed description is necessary to make easy the distinctions between the two species. The following specimens in the Kew herbarium belong to Senecio (Ligularis) clivorum.

Nippon: Collected by Maximowicz in Senano province in mountain meadows.

Nippon: Collected by Dickens on Fuji in shady places.

China: Hupeh, Henry, Nos. 524, 2151, 5207, 6457, and A.

China: Szechwan, Mount Omer, Faber, 373.

China: Szechwan, Potanin, the specimen called Polycephala by Winkler.

For references to this species see—Maximowicz, *Mel. Biol.* vii. 555, viii. 14; *Franchet et Savatier, En. Pl. Jap.*, I. 247; *Diels, Flore von Central China*, p. 622; *Index Floræ Sinensis*, I., 451.

* *Bull. de la Soc. Bot. de France*, 1892, pp. 279 to 307.

II. SENECIO (*Ligularia*) HODGSONI, Hooker,* or SENECIO YESOENSIS, Franchet.†—This fine plant is extremely close to the last species, and, like it, is a native of Japan and Central China. It was discovered in the island of Yezo, and was introduced into cultivation in England in 1863, and an excellent figure of it appears in the *Botanical Magazine*, t. 5417, to which a reference is made in Bentham and Hooker's *Genera Plantarum*, ii., 449. In spite of the prominence of its publication, the name, Ligularia Hodgsoni, in some curious way entirely escaped the attention of subsequent botanists, so that Franchet described the plant years afterwards, in 1892, under a new specific name!

S. (*Ligularia*) HODGSONI, Hooker, scarcely differs in habit or in leaves from the last species. It is a perennial, succulent herb, about 3 feet high, with the pubescence of S. (L.) clivorum. The radial leaves have long simple petioles, and are cordate-ovate or cordate-reniform, with a sharp but coarsely dentate margin. They are globellately five-nerved. The cauline leaves have petioles which are broadly sheathing and amplexicaul; above they become small and bract-like. The inflorescence is a dense corymb. The seeds are subtended by two subulate bracts, which coming off from the head itself may be styled calyculate. The heads are 2 to 2½ inches wide, pale yellow, and many-flowered. The involucre is composed of a single series of ten or eleven phyllaries, which are oblong-lanceolate and acute. The tubular florets are less numerous than in L. clivorum. The ligules are sixteen to twenty in number, they are linear, but shorter and broader proportionately than in L. clivorum, they are set close together, so that scarcely any interval shows between the contiguous hairs. They are nerved as in S. (L.) clivorum, and are two to three toothed at the end. The pappus is tawny, and the achenes are not glabrous.

Franchet describes two varieties of this species which occur in Szechwan, viz.:—

β. *Sutchuensis.*—Inflorescence many-headed; heads loosely cobwebby; pappus rufous; leaves dentate or crenate.

γ. *Crenifera.*—Plant low and flexuose; leaves coarsely crenate dentate, and thick in substance; ligules short; heads lanuginous, and shortly campanulate.

δ. (*Ligularia*) *Hodgsoni* is in cultivation in the herbaceous ground at Kew, but it rarely flowers, possibly because it is not planted in a sufficiently moist locality. Mr. Wilson collected this species in Central China, and probably some of its varieties obtained by him may be introduced into cultivation by Messrs. Veitch.

It is represented in the Kew herbarium by the following specimens:—

Yezo: Hakodadi, collected by Hodgson.

Yezo: Hakodadi, a specimen collected by Maximowicz, which was distributed by him as Senecio clivorum.

Nippon: Faurie, No. 916.

Szechwan: Potanin, a specimen called by Winkler S. clivorum var. crenifera.

The main distinctions between the two species are as follows:—

S. (L.) clivorum.—Corymb loose, heads large and orange in colour; ligules twelve, long, and very patent; the heads are unprovided with calyculate bracts.

S. (L.) Hodgsoni.—Corymb dense, heads half the size of those of the other species, and yellow in colour; ligules sixteen to twenty, short, and set closely together; the heads have two calyculate bracts.

I do not believe that any distinction can be drawn from the leaf characters.

III. LIGULARIA CALTHÆFOLIA, *Maximowicz*, is recorded for Japan by Matsumura. It is represented in the Kew herbarium by specimens collected by Wilford in Manchuria.

It is *Senecio calthæfolius* of *Maximowicz*, and is a low plant, glabrous except in the inflorescence, which is cottony-pubescent. The leaves are sub-coriaceous, and are pinnately-nerved. The radical leaves have long single petioles, and are cordate-ovate or cordate-rotund, obtusely serrate. The cauline leaves are few, with amplexicaul sheathing petioles. The corymb is dense, one to three-headed. The heads have a pair of calyculate bracts, and are as large as in L. clivorum, and have a similar involucre. The ligules are spatulate-linear. This species is easily distinguished from the preceding by its leaves, which are longer than broad, and pinnately nerved. It is also a much smaller plant.

IV. LIGULARIA KÆMPFERI, *Siebold* and *Zuccarini*, or SENECIO KÆMPFERI, *De Candolle*, occurs in Hongkong, Chusan, Ningpo, Japan and Formosa. It is easily distinguished from the other species by its leafless scape, on which only one or two small bracts occur.

The leaves are all radical, with a generally angular outline. The flowers are loosely corymbose; and the heads have three or four spreading calyculate bracts.

V. LIGULARIA STENOGLOSSA, *Henry*, or SENECIO STENOGLOSSUS, *Franchet*.—This is a Yunnan plant, with leaves of the general character of those of L. clivorum, i.e.—

Radical leaves, cordate-reniform, on long single petioles, and cauline leaves with sheathing amplexicaul petioles. The flower-heads are very small, with exceedingly narrow linear ligules, about ⅜ inch long and $\frac{1}{25}$ inch wide. This plant is not yet introduced.

VI. SENECIO DUX, *Clarke*, a plant of Kohima, has similar foliage, but the ligules are completely absent.

Since the publication of Franchet's exhaustive monograph, enumerating sixty-eight species of Ligularia, several other species have been discovered, of which the following is a brief list:—

A. LIGULARIA:—

Senecio botryodes, Winckler, *Acta Horti Petrop.*, xiv., 154. Tachienlu; Potanin.

Senecio duciformis, Winkler, *l.c.*, 155. Same locality.

Senecio euryphyllus, Winkler, *l.c.*, 156. Same locality.

Senecio Caroli, Winkler, *Acta Horti Petrop.*, xiii., 7.

B. CREMANTHODIUM:—

Cremanthodium Potanini, Winkler, *Acta Horti Petrop.*, xiv., 150. Kansu; Potanin.

Senecio principis, Franchet, *Jour. de Bot.*, 1896, 412. Yunnan; Prince Henri d'Orleans.

Senecio kialensis, Franchet, *l.c.*, 413. Szechwan; Prince Henri d'Orleans.

Senecio Prattii, Hemsley, in Hooker's *Icones Plantarum*, t. 2491. Szechwan; Pratt.

Senecio Deasyi, Hemsley, in Hooker's *Icones Plantarum*, t. 2587. Tibet; Deasy.

I may here make a note concerning *Ligularia japonica*, Less. A variety of this with extremely large flowers, some 6 inches across, was discovered by me in one of the glens off the Ichang gorge, in a streamlet bed. This beautiful plant was searched for in vain by Mr. Wilson, and it must be presumed that the Chinese have dug it up, or that some flood has swept it away. *Augustine Henry.*

* In *Hooker, Botanical Magazine*, t. 5417.

† In *Bulletin de la Soc. Bot. de France*, 1892, p. 306.

FIG. 73.—PINEAPPLES GROWN IN BARON ROTHSCHILD'S GARDEN, HOHE WARTE, VIENNA.

A GROUP OF PINEAPPLES.

OUR illustration (fig. 73) depicts a group of three plants of Pineapples cultivated by Mr. J. Roberts, gr. to Baron Rothschild, at Hohe Warte, Vienna. The central plant, a Queen Pine, possessed a fruit of 7 lb., and therefore considerably over the average in point of weight. The outside plants are of the variety Brackermorensis, which produces very large fruits; those shown weighing in each case more than 10 lb. It was introduced from Colombia by Messrs. Linden, of Brussels, some years since. Mr. Roberts is an expert in Pineapple-culture, as these fine examples show.

THE FERNERY.

BRITISH AND EXOTIC FERNS.

ALTHOUGH so far only one definite alliance is recorded between a British Fern and a tender exotic, in the shape of that very striking success in hybridisation, Polypodium Schneideri ×, this one success is amply sufficient to show that a wide field is open for the amplification of fine forms on similar lines. This plant is due to a cross effected between a variety of Polypodium vulgare and the normal form of P. aureum. The former is in itself one of the most remarkable varieties of a normally simple pinnate species, and was found wild many years ago in Cornwall, for which reason it is known as P. v. cornubiense, while on account of its very elegant cutting it is also more generally known as P. v. elegantissimum. It is characterised by being polymorphic, i.e. bearing fronds of several distinct types; a small proportion are quite normal, and the rest are of two much divided forms, one tripinnate and foliose, the other tripinnate, and even quadripinnate, the divisions being all very narrow. To add to its peculiarity, all three types may appear on one and the same frond. Finally, the finest cut fronds, under congenial conditions of culture, finish their growth by forming long linear extensions to the ultimate segments, and a profusion of bulbils on the sites of the spore heaps. We have here consequently not merely one distinct varietal feature, but several in conjunction, and it is this fact, among others, which stamps the cross in question as an undoubted one, while the appearance of a single varietal character might be imputed to an independent variation or sprout, despite the use of a parent which possessed it. In P. Schneiderii ×, as we have seen, one parent, P. aureum, is of a normal specific type, somewhat resembling the normal P. vulgare in the fact that despite its far greater size, it is simply pinnate. The introduction of the blood of P. v. elegantissimum evidences itself in the cross by imparting to the huge size of P. aureum precisely the same finely-cut character of the intermediate fronds (the finest type had so far not appeared) conjoined with the same, in this case, dimorphic feature of an intermixture of very slightly modified normal fronds of P. aureum, plus the piecemeal appearance of the two characters in one and the same frond. In addition to this incontestable proof of the alliance, we have a constitutional factor introduced in the shape of a capacity to stand several degrees of frost, a plant in the writer's collection having survived several winters in a quite cold house, where it has been repeatedly slightly frozen. As further evidence of alliance between very distinct species, the spores are imperfect, and though seemingly freely produced, appear under the microscope as mere dust. The possibility therefore of P. Schneideri × being a mere sport on parallel lines to P. elegantissimum, instead of a cross, may, it will be seen, be dismissed as untenable, and we are fully justified therefore in accepting it as a fair starting-point for

further experiments on similar lines. Mr. Schneider indeed was not content with this success, but subsequently sowed P. v. cristatum with other exotic members of the same genus, and undoubtedly obtained crested forms of the latter among the results of his sowing; cresting however *per se* occurs so frequently as a sport that these results, though we see no reason to doubt their hybrid origin, are not so conclusive, though nevertheless encouraging for further efforts.

The British species of Ferns curiously enough have not only afforded a far greater number of "sports," crested, plumose and otherwise varied, than the exotics, but there are many types of variation among them at once beautiful and curious which have not appeared at all among the latter, and which, if they could be introduced by judicious crossing, would certainly give rise to very attractive and valuable decorative plants, besides, and this is a material point, adding in all probability to their hardiness and consequent ease of cultivation. In Ferns fortunately the would-be hybridiser is not handicapped as in flowering plants by incompatibility between the size of the pollen grains and the length of stigma to be traversed to reach the embryo seed. Undoubtedly in most plants these factors are nicely co-adapted; a very long-styled stigma, like that of a Lily, is associated with very large pollen grains, and very short-styled flowers with smaller ones. Practically, however, all Ferns, from the smallest to the largest, perform their reproductive functions on the same microscopic scale, the prothallus or tiny primary leaf produced from the spore is much of a size throughout all the genera, and as the antherozoids are free-swimming organisms, a little difference in dimensions forms no obstacle to their reaching the archegonial bud.

Hence no obvious structural difficulty stands in the way of mating the tiniest Fern with the largest Tree-Fern; all that is necessary is some degree of kinship. This fact clearly widens the field of operations considerably, and, to take a concrete example, suggests the possibility of infusing the pretty cresting of our native Asplenium Trichomanes even into the grand Asplenium nidus-avis, or many others of the large family of the exotic Spleenworts, which by the way are peculiarly constant and non-sportive in themselves. In this particular connection too, and especially in allusion to A. nidus-avis, our native Hartstongue, Scolopendrium vulgare, which has perhaps afforded more distinct varieties than any other species, might well be used. That it is closely allied to the Spleenwort is seen in its linear fructification, and the fact that although these are always in faced pairs, while that of the Spleenwort is assumed to be single, there are exceptions to the rule in the latter family, faced pairs precisely of the Scolopendrium type occurring frequently in A. hemionitis, while they have been noted in varietal forms of A. marinum. In these genera, then, there are obviously many openings for alliance, which by the way there is strong evidence to prove has already been effected in the case of S. vulgare and A. Ceterach. *A. Druery, F.L.S., V.M.H.*

(To be continued.)

SLUGS THAT "SPIN" THREADS.

QUITE recently a correspondent of the *Gardeners' Chronicle* described the action of a slug, which let itself down to the ground by means of a mucous thread. The observer not having witnessed such an occurrence before, very naturally asked whether it was something out of the common, or whether he had merely up to that time missed seeing it.

The following brief remarks upon this highly interesting subject may be taken as an answer to the question. Of the three families of slugs which are represented in this country, two contain members, known by careful students of these creatures, to have the power not only of descending from a height by means of a slime thread, but also of climbing up the latter again

FIG. 74.—GARDEN SLUGS.
One of the common garden slugs, Arion hortensis, descending; and Arion subfuscus (young) ascending by means of slime-threads. (*After J. W. Taylor and H. Wallis, Kew.*)

should necessity demand it. The fact that dwellers in a locality where slugs abound, and there are few where they do not, may not have seen one of them go through its acrobatic performance during half a century's experience of outdoor life, depends simply upon the fact that as a rule special conditions and untoward circumstances alone call for the exhibition of the peculiar power in question. A specimen of the great spotted slug (Limax maximus) having escaped from confinement, and finding itself on a mantelpiece, has been known to straightway let itself down into the fender. Individuals of this species when pairing seem habitually to hang head downwards from a rope of mucus produced by their joint efforts; but as they meet at nights, and only in the height of summer, the chances are against the act being seen by the ordinary observer.

The "tree slug" (Limax marginatus) which again is active at night, shows perhaps the least reluctance, especially when young, to "spin" slime-threads, and it stands to reason that in its arboreal life the power of descending from branch to branch by these means must prove exceedingly useful.

The little grey slug with milk-white slime (Limax agrestis), so well known as a garden pest, has been seen to descend from an elm-tree through a distance of 11 feet; and doubtless other members of the genus have similar powers.

In the second family, that of the Arionidæ, several species of the genus Arion "spin" threads, and exhibit the same facility in going down them and up again as do the Limaces. Two are shown in our illustration (fig. 74), and it may be remarked that young examples are the most ready to display their powers. It is obvious also that when a slug is well fed and heavy it is not so likely to undertake gymnastic exercises as if it is hungry, and comparatively light.

The actual thread is simply the mucus which lubricates, as it were, the underside or "foot" of the slug, and forms the silvery trail which marks the route traversed by the animal in its peregrinations. When the slug uses it to form a thread, it is freely exuded from the supplying glands, and worked towards the hinder extremity of the animal by particular movements of the foot, which there temporarily forms a groove by the up curving of its edges, which keeps a hold on the thread as it gradually lengthens. *Wilfred Mark Webb.*

THE ROSARY.

ROSE CAROLINE TESTOUT.

THIS is one of the best varieties for furnishing a large quantity of flowers for cutting of a deep pink colour, as it commences to grow again for its second flowering period before the first is over, and in warm seasons I have had three crops of flowers from plants in the open garden. Though not so pretty as regards form as La France, it excels that excellent variety in vigour, and is not far behind it in fragrance; it also opens better in bad weather, and is moreover perfectly hardy on its own roots. I find it strikes very easily if cuttings are put in at the end of the present month, a cutting bed being prepared for them on a cool border by adding sand and leaf-mould to the staple. The bed should be of the size to fit a frame or some hand-lights over it, which must be put on as soon as the cuttings are put in, and be kept close for a month, shading the cuttings from bright sunshine. For cuttings, I prefer wood that has become moderately

firm (half ripe), and has a heel of older wood attached. After keeping the frame close for a month a small quantity of air is admitted whenever there is no actual frost, in order to prevent top-growth getting too far advanced before spring comes, but the lights are kept on more or less until all danger of frost is past; when treated thus, over 90 per cent. of the cuttings will make good plants in two years. They should remain in the bed over the first year, and then be transplanted into nursery beds for a year before setting out in their permanent quarters, but they will only require protection during the first eight or nine months after they are put in as cuttings. *W. H. Divers, Belvoir Castle Gardens, Grantham.* [The beautiful Souvenir de la Malmaison Rose yields good results by the same method. ED.]

CHINA ASTERS.

WITH the following note came a photograph and box of flowers showing great variety of colours, and the plants of compact, free flowering habit. They had evidently been picked samples of fine varieties, but on arrival they were in melancholy condition, though sufficiently good to substantiate Mr. Roemer's statements concerning them :—

"Enclosed I beg to hand you a photo of a field of my Asters. In the front of the photograph you will see my extra early Hohenzollern Aster in full bloom, while in the further part of the photograph you will see the Ostrich Feather or Ostrich Plume Aster; of this strain of Asters only few flowers are showing bloom. The next part of the photograph shows Hohenzollern Asters. This race of Asters represents the largest and best curled flowers, with very long and twisted florets; the flowers are borne on very stout and strong stems. I also enclose a flower of each of Hohenzollern Aster, white, delicate rose, rose and crimson, and other colours.

"Ostrich Feather Aster is the very best Aster where cut flowers are in demand. The form of the flower is similar to that of the Hohenzollern Aster, but the Hohenzollern is more massive, and larger; it is the best Aster for show beds and exhibition purposes. The Ostrich Feather is of a bushy habit, and the flower-stalks are as slender as possible. I have grown plants of this kind with the following colours during the last few years:—White, changing to rose; white, changing to azure-blue; azure-blue, rose, crimson, reddish-lilac. Last year I had light-yellow, dark blue, and brownish-violet, and this year for the coming season I expect to have white tipped carmine, white tipped violet, and white tipped brownish-violet. The Extra Early Hohenzollern Aster, of which strain of Asters I brought out the white two years ago, flowers as early as the Queen of the Market Aster, but the flowers are almost double the size of those of the older class. It is rather too late to send good plants of it now. This year I am sending out two new colours of this Extra Early class of Asters—white, changing to rose, and rose. The rose begins to flower a few days before the white; the flowers are of very good 'Comet' form, and measure as much as 4½ inches across. The plants are about 12 to 14 inches in height.

"I beg to add a flower also of my Giant Victoria Aster, to show the difference between the old Victoria Aster, white, and my strain. I also enclose a flower of the old strain, and some other colours of it.

"In the Ray Aster I not only improved this class, but I was also successful in producing new colours. I enclose a flower of the older white and rose, and of my last year's novelties, delicate lilac and reddish-lilac, and this year I trust to offer crimson and coppery-carmine. I also send some flowers of my Giant Comet Asters. I hope to improve the race in doubleness and size of flowers, and also in different new colours. In form the flowers of Giant Comet and Ostrich Feather are nearly similar; but Giant Comet is a plant of a close pyramidal habit, while Ostrich Feather is of a bushy habit.

"Of Dwarf Hohenzollern Aster, I forward a full plant; it is the dwarfest Aster, with the largest flowers of Comet form, offered with me two years ago. Take also notice of the Victoria Aster, canary-yellow, that I hope to offer in 1904.

"A few years ago I noticed among my white Ostrich-feather Asters a plant that showed somewhat rolled petals. I cultivated it, and selected the best plants of it showing this characteristic. This strain comes quite true from seed. The plants are of a very robust habit, very free flowering, and the flowers are borne on long stems. The flowers are perfectly double, not showing any yellow centre, the imbricating florets are arranged in a symmetrical manner. The outer row of florets are flat, rolled only at the tip of the florets, but all the other florets are perfectly rolled inwards, a condition not noticed with other strains of Asters up to the present. I may mention that the florets of the Needle, also those of the Ray Asters, also those of the Cell Asters, are grown together, but none of these Asters have rolled florets. I intend to call this new class of Asters, Noble Aster or Cactus-flowered Aster, because it shows the same character as in certain Dahlias. *Frederick Roemer, Quedlinburg.*

HOME CORRESPONDENCE.

MR. CARMICHAEL'S STRAWBERRIES. — One or two of the novelties are worthy of the attention of gardeners, viz., C. A. Carmichael, Duke of Montrose, and Richard Gilbert, raised by Mr. Carmichael, now of 14, Pitt Street, Edinburgh, and formerly of Sandringham. The first named is certainly the best that he has raised. From plants of this variety put out in September, 1901, I gathered this season, fruits of 1 oz. in weight, and that too from the second blooms, the first having been destroyed by frosts. The plant is hardy and robust, the flower-stalks stout and erect growing; and the fruit is large and firm, of a bright colour, and of excellent flavour. Its productiveness is very great. The variety may be classed as second early, ripening its fruit in the same week as Royal Sovereign. Duke of Montrose does not seem to be quite such a strong grower, and the fruit is rather flatter, otherwise it possesses almost the same characteristics as the variety first mentioned. Richard Gilbert, one of the parents of these two varieties, merits a place in every garden, be it ever so small, the fruits being firm and large, and well adapted for market purposes, bearing carriage well. Princess of Wales, Queen of Denmark, and Britannia, are others from the same source, but requiring further trial before being planted in quantity. Trafalgar and Fillbasket were obtained from another source, and they look very promising. *J. Watt, Mynthurst, Reigate.*

BASTARD TRENCHING GRASS LAND.—The method recommended in your issue of Aug. 16 of keeping the grassy side of the turf downwards is a course usually adopted, but my opinion, which is borne out by Mr. Miller, is that the entire turf is best chopped up into pieces and mixed well up with the bottom soil as trenching proceeds. I quite agree with good deep tillage, but if the subsoil is deleterious to vegetation the bulk of it should be kept *in situ* at the bottom of the trench, or only a small portion brought up at each trenching; but all this will not avail unless the ground is efficiently drained, or above a gravelly bottom. I consider autumn cultivation of grass land is better than when it is left till the spring, as the soil becomes well aërated and pulverised for the crop. Some few years ago I had occasion to trench 2 acres of grass land for planting with fruit-trees, which was completed by November. The following spring I planted half the trenched area with early and second Potatos, and the other half with Fillbasket Peas for market, and better crops could not have been desired, besides being a commercial success. The ground was in grand condition in the autumn for planting the fruit-trees, and the abundant crops borne since have justified the outlay. Half-standard and bush Apples on Paradise stock, and pyramid Pears on the Quince stock of the most approved selling kinds, formed the principal crop. I am of the same opinion as Mr. Miller, that no manure is necessary for the first few years if there is a good deep tilth, but I do think some good phosphatic or artificial manure can be used to advantage occasionally on the growing crop, and especially when the trees begin to swell up their fruit. *J. D. Godwin.* [Our correspondent has misunderstood the directions given in our issue for August 16. "Keeping the grassy side downwards" applied to the process of digging without first skimming the turf off the soil, and everyone will know that if each spit be not reversed in the act of throwing it into the trench, much of the turf will be near the surface, and the grasses will reappear next year, to the gardeners' annoyance. Moreover, turf skimmed off in big or little pieces decays within a year, and unless it be of a stiff, clayey nature, it will offer no hindrance whatever to the passage of water downwards by gravitation, or upwards by capillary attraction. ED.]

APPLE BISMARCK.—In reply to Mr. Woodward's inquiry in the *Gardeners' Chronicle* recently, I should suppose that this variety requires a light warm soil, and to be well supplied with water during dry weather. I should say Mr. Woodward's soil is heavy, and does not suit it. *G. Fulford, Presdales Gardens, Ware.* [*Apropos* of this, we have seen excellently cropped small trees of this variety (nursery stock) in Messrs. Cheale's nursery, Crawley, growing in clayey loam. ED.]

THE HAILSTORM IN WEST KENT.—Mr. G. Woodward sends us the following graphic account of the disastrous hailstorm which visited the valley of the Medway on the 10th inst.:—"I find upon counting, that we have over three thousand panes of glass broken. The hail appears to have been quite local, Barham Court was just in the centre of the district visited. It is a curious experience for me, that I have neither an Apple, nor a Pear, nor a Peach, nor a Plum, nor a Damson that will be of any use. Could I describe the devastation, I do not believe one person in a hundred would believe the pitiful condition we are in. I have not a particle of green vegetable left. Brussels Sprouts, Savoys, Peas, and Beans are completely stripped, and the stems alone remain. Two thousand Chrysanthemums with me have not a leaf remaining upon them. The Hops upon our home farm of about 90 acres are more than half upon the ground, and it is very doubtful whether the remaining ones will be worth picking. This alone represents a loss of several thousands of pounds. The whole of our lawn which slopes to the south, and is bordered by a ha-ha, was a wonderful sight to behold. At one time the hail was from 6 to 9 inches deep, and the force of the falling hailstones made, or rather cut, wide channels into it. The hail was carried into the ha-ha, which is 6 feet deep and enclosed by a fence. When I measured it last night, I found 8 feet

deep of solid ice. My men are using shovels to clear the paths, so that on each side we have now about 2 feet of solid ice. *Geo. Woodward, Sept.* 11."

ASTILBE LEMOINEI ×.—In the *Gardeners' Chronicle*, August 9 and 30, 1902, pp. 95 and 154, there is an exceedingly interesting article by Dr. Henry on the genus Astilbe. Mention is therein made of A. Lemoinei ×, sent out by us in 1895, and it is said that this plant is described as being a hybrid between Astilbe Thunbergi and Spiræa astilboides (see Lemoine in *Revue Horticole*, 1895, p. 566), but that Mr. Nicholson doubted this origin and thought the hybrid was a cross between A. Thunbergi and A. japonica. Let me set this straight. I said in the number of the *Revue Horticole* just quoted that A. Lemoinei × was from a cross between A. Thunbergi and Spiræa (Astilbe) astilboides var. floribunda, which is by no means the same thing as Spiræa (Astilbe) astilboides type. Indeed, in this same article I remarked that Spiræa astilboides var. floribunda was raised by M. Desbois of Ghent by an accidental cross between A. japonica and S. astilboides type. This is the pedigree:—

Astilbe japonica × S. astilboides

S. astilboides var. floribunda × A. Thunbergi

Astilbe Lemoinei ×.

As this last cross was not effected accidentally but intentionally, and as the history of it has been published, Mr. Nicholson was incorrect in questioning what I said in the above mentioned number of the *Revue Horticole*. Further, I was surprised that Dr. Henry did not include the Spiræa (Astilbe) astilboides in his list of species of Astilbe, for it must be preserved in the Kew herbarium, and it could easily be proved that it really is an Astilbe. I naturally speak of the pure species as introduced by Mr. William Bull. *Emile Lemoine, Nancy.*

WHAT IS THE LUCOMBE OAK?—I have perused your correspondent's interesting observations, at p. 195, regarding the Lucombe tree, with a great deal of pleasure, and the best reply I can think of to Mr. Elwes' question is: The Lucombe Oak is most essentially the Lucombe Oak because as a park tree, and for landscape effects it is unsurpassed. Early in the eighties, when I was the late Messrs. Lucombe, Pince & Co.'s representative, I saw the Lucombe trees at Carclew, having visited during my travelling days that historical house and rich estate on several occasions, and at many of the more important parks and gardens I have noticed fine examples of this monarch of the Oaks. One of the finest, however, stood by the lodge-gate of Trevarrick, St. Austell; there were also some fine specimens in the rectory grounds of my old parish of Alphington, within fifteen minutes' walk of the Exeter Nursery. I never heard until now that Wm. Lucombe, of the Exeter Nursery, had ever been gardener at Carclew, hence I think it very improbable. I have proof that he was the proprietor of the Exeter Nursery in 1772. The nursery was established in 1720, and Lucombe raised the Lucombe Oak in or about the year 1765; moreover my late friend George Medland (a famous florist and hybridiser) who died on August 3, 1894, aged 87, once informed me that he could remember the old John Lucombe (presumably a son of the said William Lucombe), who had retired from the business many years. In this connexion I possess a note in the handwriting of my first master (Lucombe's successor) the late enthusiastic Mr. R. T. Pince, declaring the Lucombe Oak to be a hybrid of the Turkey Oak (Quercus cerris) and the Cork Oak (Quercus suber). Mr. Pince departed this life in 1871, full of years, honoured as a giant in horticulture, and the greatest, or one of the greatest landscape gardeners of the past century, a citizen of no mean city; hence, there is no doubt as to his integrity and sound judgment in such matters. I do not believe there ever were any true seedling Lucombe trees, save and except Lucombe's original, for when I was a nursery-boy at the Exeter nursery, late in the sixties, it was one of my duties to gather the fallen Acorns there, which invariably produced what we knew as bastard Oaks, more like the Ilex Oak than anything else, and from such, in long past years many fine varieties have been selected, to wit:—Quercus cerris, Lucombeana crispa, incisa, dentata, suberosa, heterophylla. All our true Lucombe Oaks were from grafts, and this recalls to mind a remark of my revered friend and master the late Dr. Woodman, that his maternal uncle, Mr. Pince, never forgave Mr. Loudon for writing the Lucombe tree as a synonym of Quercus cerris fulhamensis, for the Lucombe Oak remains clustered with its bold, leathery, dark green leaves until the young ones fill their places. The original trees of crispa and suberosa stood at the entrance gates of the Exeter Nursery, and I once had the pleasure of showing them to Mr. Harry Veitch, in company with his friend, Prof. Stewart. In 1891, Q. crispa towered to a height of nearly 70 feet, with a fine trunk girthing over 12 feet at 3 feet from the ground; the trunk of suberosa was not quite so massive, but otherwise was just as imposing. In June last I paid a flying visit to Exeter, and noticed that suberosa was still standing, but crispa had vanished. With respect to the timber, I do not think it can possibly be as durable as Quercus robur, seeing that the Lucombe tree attains dimensions in about forty years which the common Oak can barely do in one hundred, but the last time I dined with the late Dr. Woodman in 1891, at his house at Brondesbury, he pointed out a suite of furniture in one of his rooms, I think it was the breakfast room, consisting of couch, chairs, and bookcases, all of Lucombe Oak, in fine condition; and somewhere, many years ago, I saw in print, that Lucombe was buried in a coffin made from his Lucombe tree, and from plants which that ingenious old nurseryman had seasoned for many years under his bed! be that as it may, if any of my readers care to know more of this celebrated Oak, I beg to refer them to vol. vii., p. 490, of the *Gardening World*, where I gave some details of its history. *Wm. Napper, Royal Ashburnham Park Nursery, Chelsea.*

—— My friend Mr. Elwes has put a rather too positive opinion into my mouth. It is quite true that the fine specimen at Kew shows no obvious resemblance to that of the Cork Oak. But so far as the foliage goes, I see no reason to discredit the accepted statement that the Lucombe is a hybrid between the Turkey and the Cork Oak. In fact, if evidence is of any value at all, in this case it is overwhelming. Lucombe, who was a nurseryman at Exeter, raised the Oak which bears his name in 1765 from an acorn of the Turkey Oak, which had been hybridised by a neighbouring Cork Oak. It was propagated by grafting on the Turkey Oak, and widely planted in Devonshire, Cornwall, and Somersetshire. We are especially told that it was "found to flourish on all soils." Loudon, in 1838, mentions a Lucombe Oak at Carclew as 82 feet high. According to his statement, this was planted about 1765, and must therefore been one of the original stock. It is a mere conjecture, however, that Lucombe planted any of the trees there. In 1792, the original tree at Exeter fruited, and several varieties were raised from it, one which Loudon calls the "new Lucombe Oak." *W. T. Thiselton-Dyer.*

HIERACIUM BORNMUELLERI.—With reference to a remark in the *Gardeners' Chronicle*, current number, p. 195, it may be observed that this plant was not published as a species until 1891, hence its omission from the *Index Kewensis*, which comprised names published to the end of 1885 only. This species was described by Freyn in the *Osterreichische Botanische Zeitschrift*, xli. (1891), p. 54; and in the *Bulletin de l'herbier Boissier*, iii. (1895), p. 510. *B. D. J.*

DAHLIA, PRESIDENT VIGER.—Judging from my own experience, I would not advise any one to trust to seed of the "Collarette" type to produce this variety true to name. I sowed in the spring two packets of seed represented as that of the above named variety, the produce is larger again by single and semi-double forms, without any trace of the "collar." A plant of President Viger throws every flower true to character, but to avoid coarseness the plants should be grown in good soil without manure, and not be disbudded. *R. D.*

RAINFALL AND THE FRUIT CROP AT ISLEWORTH.—On September 10 and 11 we had two violent rain-storms at the close of each day; in all, 2·60 inches of rain fell inside thirty-five hours. We have not had such rain-storms since November 2 and 5 in 1899, when 3·06 inches fell. The rainfall for the present year has now for the first time reached the average. I cannot discern any great harm to the fruit crops about here. Tomatos in the open are a complete failure, and so were Gooseberries in some places. On the other hand, Pears and Peas have produced abundantly, also wall Figs. In my garden other fruits have carried moderate crops, and I have no real ground for complaint. On the walls, Tomatos are ripening light crops of small fruit. The cut-leaved Blackberry never fails here to carry a great weight of fruit. I feel sure it would pay commercially if grown on a large scale, as it is unrivalled for bottling or preserving. Various moulds have this season been unusually destructive to stone fruits, and especially Mulberries. Such violent rains as we have just experienced are of great benefit in cleansing the fruit-trees from swarms of insects and other organisms, earwigs, woodlice, ants, red-spider, &c., and when such storms occur earlier in the summer, they are of untold benefit. *A. Worsley, September* 13, 1902.

HEXACENTRIS MYSORENSIS.—I am sending you a flowering raceme of Hexacentris mysorensis, which is not commonly known. It has now been in flower four months, and will continue flowering for a long time yet, as will be seen from the number of flower-buds still to open, and those which have opened, which up to the present total up 100. It is of easy culture, the plant in question growing in an 8-inch pot in one of the stoves here, and has covered a considerable roof space this season. *W. H. Clarke, Aston Rowant Gardens.* [The flowers had all fallen when we received the specimen, but enough remained to show how fine and distinct a creeper this is, with its handsome foliage and large yellow and red flowers. ED.]

BOTHY.—I notice with pleasure the remark made on p. 171 respecting the housing of the young gardeners at Bagshot Park. That it would be only fairness if young gardeners generally were provided with reasonable conveniences. I am sorry to say this is not the case, and some bothies to my own knowledge are not fit for human habitation. The matter rests to some extent with the head gardener, because if the subject was carefully explained to the employer, things would soon be put right in many cases, and the employer would gain the thanks and highest esteem of his employés. *R. R., Llanover.*

THE JUDGING OF CACTUS DAHLIAS.—That well-known Dahlia grower, Mr. C. J. Wyatt, of Salisbury, desires to have the judging of the quaint and beautiful Cactus Dahlia placed on a more satisfactory and consistent basis than now exists, and to that end he recently suggested to the members of the National Dahlia Society certain principles or points which should be in all cases the guide and basis of all judging of these flowers. At present it is stated that judging proceeds on no defined lines, and judges award prizes very much as fancy or preference for one form of flower over another may dictate. Mr. Wyatt proposes that the maximum of points given to any individual flower or to a bunch of flowers, this being regarded as one flower, should be ten, and he divides these points thus: Form, 4; size, 3; colour and freshness or cleanness, 2;

and for setting up, 1. Of course, although he does not say so, it would be possible for judges in cases of nice discrimination to halve these points, as for instance, in the "setting up," which may not be good, yet good enough to merit half a point. Then he is careful to intimate that he would have no specific ideal as to what each flower should be like. The suggestion is that the variety be judged on its merits as a variety. As thus: Galliard to be, if good, equal in point of merit to Mrs. J. J. Crowe, though dissimilar in form. Practically, the point for determination would be, is one or the other flower or flowers of any variety good of its kind or not? In that matter it seems probable that some difference of opinion may be created, as it is difficult to assume that if J. W. Wilkinson be worth a maximum of ten points, Charles Woodbridge, even if a good flower of its kind, can be worth so many. However, that is a matter for final determination. Mr. Wyatt, who obtained some experience of the opinion of Northern growers at the Glasgow Exhibition last September, thinks that they would appraise size in Cactus Dahlias so highly as six points, putting form at two, and colour and setting up at one each. It is to be hoped that Northern tastes, if they be thus correctly represented, will not dominate southern judgments. Certainly, in the south the first method of pointing, as presented by Mr. Wyatt, finds chief favour. We hold that size is not dominant merit; indeed, it tends to coarseness. There is more of refinement in southern flowers generally than in northern ones; but Scotch flowers were presented at Glasgow last autumn under exceptionally favourable conditions, as whilst the weather south had been hot and dry, in the north it had been cool and moderately moist. Still, it is very doubtful whether the Glasgow flowers would have held their own at the Crystal Palace had they been competing with the beautiful flowers there staged. No doubt, in relation to the suggestions that have come from Mr. Wyatt, the National Dahlia Society have done wisely to leave them for fuller consideration at a special meeting or conference when the annual show is held at the James Street Drill Hall. By that time it may be possible to devise a satisfactory point-judging basis. *A. D.*

MARKET GARDENING.

ABOUT CUCUMBERS.

I HAVE of late not infrequently heard the opinion expressed that gardening of all kinds in England has reached such a degree of excellence that there can be but little or no use for further counsels or directions by the horticultural press with regard at least to that which relates to ordinary or practical gardening, and that in future it should confine itself to botanical science, discoveries, whereby advance may be made in future. With regard to private gardening, there may possibly be a slight particle of truth in this; but with regard to market and amateur gardening, there is, I fear, no foundation for the above opinion, and horticultural journalists, in addition to scientific subjects, will do well to continue the good work they have been so ably engaged upon for so many decades, and persevere in the hope that in the end a better state of things may prevail in England with relation to market gardening, and that the toilers in this department, by the exercise of more thought and intelligence, and above all, by the abandonment of all prejudice, may place themselves in a more satisfactory position with regard to the foreigner and the vast amount of gardening produce he at present imports into this country.

It goes without saying that the general opinion amongst growers for market is, that the weekly advice and experience offered by the various horticultural journals may be of use to private gardeners, but is not of service to them; and that with regard to the production of vegetable commodities for market, private gardeners are far behind as compared with them—forgetting altogether that, in the first instance, all the fundamental knowledge in possession of the grower for market originated with the private gardener, whose patient industry, intelligent and unprejudiced perseverance, has raised his name as a producer of the fruits of the earth to the highest point, whilst his brother of the market garden by his overweening obstinacy has left himself open to the mercy of the wily, or, shall I say, more intelligent foreigner.

Of course, I admit that there is a percentage of our growers for market who work in a scientific manner, and make the most of their opportunities, but I fear that percentage is much smaller than is generally supposed, and it will hardly be denied by those who have experience in the matter, that roughness and unscientific methods are far too generally prevalent. I have seen not a few phases of bad cultivation in market establishments, all of which might be dilated upon; but for my present purpose I will take the item of Cucumber-culture, and offer a few remarks derived from my own observations.

To begin with, I must say that if the Cucumber-plant really requires the treatment it generally receives at the hands of market gardeners, then it must be one of the most extraordinary plants on the face of the earth. I cannot imagine the requirements of any cultivated plant to include the stewing and drenching process the Cucumber-plant is usually submitted to, both on its foliage and roots, from the germination of the seed to the time the exhausted plant is relegated to the rubbish-heap, frequently but a brief period. As a rule, houses in which the plants are grown and fruited are "steamed up" or "damped down" a stated number of times per diem, regardless of the outside weather conditions; and the plants receive a soaking at the roots at equally regular intervals, with a supreme indifference as to whether they require it or not, until the soil becomes sour and sodden, resulting in the inevitable decay of the roots, and consequent inability of the plant any longer to produce first-class fruit. In addition to the above, syringing is frequently resorted to, and the walls are kept running with moisture and the paths flooded.

Under the above conditions, it is to me a marvel how any cultivator can expect anything but premature decay in the plant, and consequent vexation and loss. When the question is put as to why all this moisture at the roots and on the foliage is applied, the answer comes: "To keep down red spider and other insects, and to produce—— Well, Cucumber plants must have abundance of water." True, they require abundance of water, but I fail to see that abundance means soaking, in season and out of season, without giving the slightest thought to the state of the soil or the outside weather. It may seem beyond belief, but lately I have purposely conversed with a number of young men employed as Cucumber growers in large establishments with regard to the water question, and while all stated that one of the main objects in giving so much water was to keep down red-spider, only one of the number had the faintest idea of what red-spider really was [!].

My observation points in the direction that frequently far too elaborate arrangements are made with regard to the formation of the beds in Cucumber-houses, and that in numerous cases a great deal too much soil is used before planting, with very unsatisfactory results. A great mass of soil, when subjected from the beginning to regulation waterings, quickly assumes a condition inimical to healthy root action and longevity of the plants. One often hears the remark, "The roots are showing beautifully all over the surface of the beds, and I must have them top-dressed at once." Consequently a layer of soil and manure (the latter frequently very crude) is spread over the surface, and immediately subjected to the same system of watering. The appearance of surface-roots is an effect, and is generally hailed with satisfaction by the grower, whilst the cause is altogether lost sight of. Some time ago there appeared in the *Gardeners' Chronicle* a paragraph giving a short account of a lecture on vegetable pathology, by Mr. B. T. Galloway, who, in summing up the requirements for future advance in knowledge, made the following striking remark:—"Thus the highest aim of the investigator in the field of vegetable pathology will be not to deal with effects only, but to study causes, for it is only by such means that the greatest good can be accomplished." The value of this remark is apparent, and, as I take it, is as applicable to abnormal appearances in plant growth as to that of plant diseases; and I may be pardoned if I suggest that growers would do well to study causes more than effects, which might in a great degree save the loss of time and money in fruitless attempts in struggling with consequences.

When I see numerous rootlets appear on the surface of a Cucumber-bed, I always feel impressed with the idea that all is not right beneath the surface; and that they have come up in search of some sweeter and purer nourishment than is to be found below—a last effort of Nature, as it were, to prolong the life of the plant by avoiding the sour, spongy mass of saturated soil and manure underneath, into which no revivifying air can possibly enter for the purer conditions to be found on the surface. I need hardly say that the Cucumber plant is not an aquatic; then why, in the name of wonder, treat it as such? When planted in the open, no attempt is ever made to deluge it with water in fair weather and in foul, and yet the plant bears abundantly crops of the best quality and size, which are considered by not a few of superior flavour to those grown under glass. *J. Lowrie.*

(To be continued.)

SOCIETIES.

ROYAL HORTICULTURAL.

CHISWICK, SEPT. 12.—A meeting of the Fruit and Vegetable Committee was held here on the above date, Mr. H. Balderson in the Chair. Also present:—Messrs. O. Thomas, J. Jacques, W. Bates, A. Dean, J. Willard, C. Help, H. Esling, and J. Smith.

The subjects for examination were late Potatos and Tomatos. The former had been nearly washed out of the ground by the tremendous rainfalls of the two preceding days, but ten were found good enough to be selected for the cooking test, being all good croppers, and so far quite free from disease. Of these, eventually Scammell's Seedling, a flat white, was given an Award of Merit. The following were ordered to be tried again in December, after they had become matured:—Springfield (Dobbie & Co.), Marfield (Bristowe), H. Fincham (Fincham), Victoria Improved (Sharpe), Alderman (Sharpe), Dalmeny Beauty, a huge cropper (Smith), and Shamrock 2nd (Appleby).

The New Century Kidney (Dickson), given an Award of Merit at the previous meeting was by request cooked again, and was found to be of the finest edible excellence. It was desired that the next meeting take place on December 5. A few varieties of Runner Beans were seen bearing well, but in view of

the full trial of Kidney Beans promised next year, no awards were made. A trial of a very large number of varieties of Tomatos in pots in pairs was seen, but as none showed any advance over well known varieties, no awards were made. The Committee agreed, on the proposition of Mr. Jacques, seconded by Mr. O. Thomas, that in the future in relation to trials, no one should be allowed to send more than six varieties (the best they have) of any one kind of vegetable for trial in one season, so as to secure in such things as Tomatos, for instance, that six plants instead of but two shall be grown of each one. Also that in the Bean trial of next year some dry seed for comparison be reserved of each variety, and that a few standard varieties of any kind of vegetable be always grown for comparison.

NORTH MIDDLESEX DAHLIA.

[SEPTEMBER 11, 12.—This society, which started in a small way last year as the Hornsey Dahlia Society, finding that a good deal of interest has been aroused in the culture the Dahlia in this district of North Tower Hill, Brentwood; and also by Mr. E. F. SUCH, who had in addition a good group of early Chrysanthemums.

Messrs. W. CUTBUSH & SON, Highgate Nurseries, had a large collection of Dahlias, many of them set up in handsome bamboo stands. Mr. AMOS PERRY, Hardy Plant Farm, Winchmore Hill, had a large collection of cut flowers; and Medals of the Society were awarded to all the foregoing.

A few classes were open to all members, and Mr. H. A. NEEDS, Horsell, Woking, was 1st with twenty-four excellent blooms of Cactus varieties, shown on boards; and Mr. W. BAXTER, nurseryman, Woking, was 2nd.

Mr. S. MORTIMER, Swiss Nursery, Farnham, was placed 1st with twelve blooms of show and fancy Dahlias. He had in fine character, John Hickling, James Cocker, Miss Cannell, R. T. Rawlings, Maud Fellowes, John Walker, Queen of the Belgians, Matthew Campbell, &c.; Mr. E. HOWS, Finchley, was 2nd. Mr. MORTIMER, was also 1st with six fancy Dahlias.

With six varieties of Cactus Dahlias in bunches, three blooms of each, Mr. H. A. NEEDS was 1st, showing well developed examples of Mrs. Mawley, Lottie Dean, Mrs. Vegetables, for which there was also a farmers' class, were well forward and in good condition, especially Carrots and Swedes.

In the open class the following were the principal prize-takers:—Messrs. W. ANDERSON, Mossknowe; W. WEBSTER, Springkell; EWAN CAMERON, Eriestane, Moffat; D. WHITELAW, Locharbrigs; and W. HOTSON; Langholm—the last two of whom were also conspicuous among the amateurs. *R. J. Arnott.*

LONDON DAHLIA UNION.

SEPTEMBER 16, 17, 18.—On Tuesday last there was opened in the Royal Aquarium, Westminster, an exhibition of Dahlias, under the auspices of the London Dahlia Union, a body of about thirty-six members; Mr. R. Dean is Hon. Secretary. The nineteen classes included eleven for Cactus Dahlias, four for show and fancy varieties, and several for Pompon and single flowers. There was excellent competition throughout, and in many instances the quality of the flowers was very high.

In the open classes for show and fancy Dahlias, the best collection of twenty-four blooms was shown by

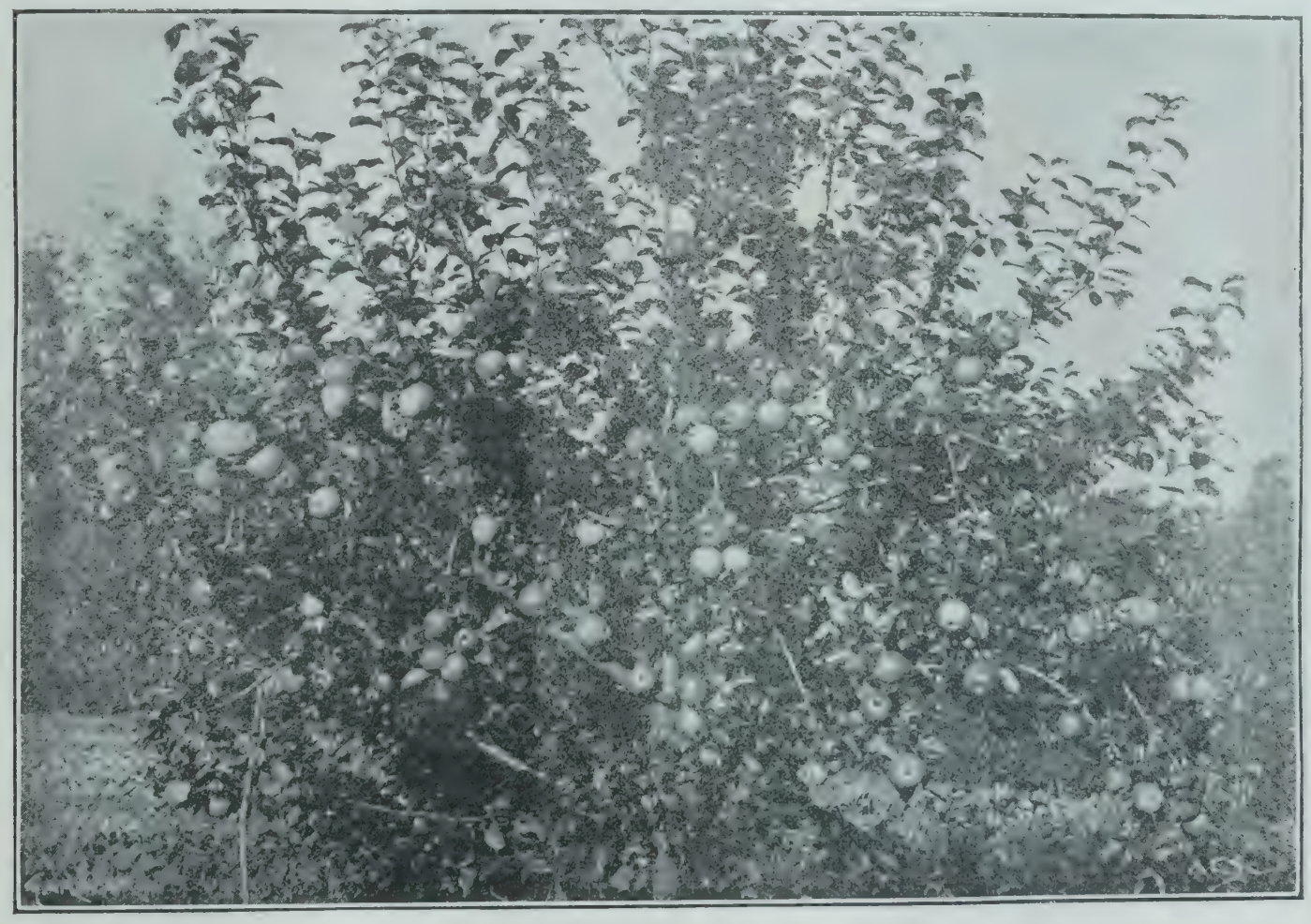

FIG. 75.—A BUSH OF PEASGOOD'S NONESUCH APPLE, IN MR. BAYLOR HARTLAND'S NURSERY, CORK.

London, held its second show at the Alexandra Palace, that proved a most satisfactory improvement upon last year—great in regard to quantity, but remarkable in regard to quality. The Central Hall of the Alexandra Palace is perhaps the best in London for a flower show—it would be invaluable were it not so far from the west-central district.

In the centre of the Hall, Mr. G. HEMMING, the Superintendent of the Park, who is doing so much to enhance the floral attractions of the grounds, staged a large and highly effective diamond-shaped group of flowering and foliaged plants, and in addition set up an attractive table of hardy flowers, and also Tomatos—a very fine variety of handsome appearance and rich colour, raised by Mr. HEMMING in the Palace grounds, is not only a free cropper, but the solidity of the fruit enables them to keep sound for a longer time than usual after being cut.

Round the sides of the Hall, Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, had a representative collection of Cactus, pompon, and single Dahlias, backed by sprays of handsome hardy foliage, and they received Certificates of Merit for two new single Dahlias—Snowdrop, already described in these columns; and Serita, a medium-size, finely formed, deep crimson round the eye, edged with rosy-crimson.

An excellent collection of Dahlias, including some fine show varieties, was staged by Mr. J. T. WEST, J. J. Crowe, H. A. Needs, Uncle Tom, and Mrs. Carter Page. Mr. S. MORTIMER was a very close 2nd In another class for six bunches of Cactus, three blooms of each, Mr. W. BAXTER was 1st, and Mr. E. HOWS, 2nd, both showing good blooms.

Some good pompone Dahlias were staged, and there were vases of Dahlias also in several classes. Charming baskets of flowers, dinner-tables florally decorated, bouquets, &c., with classes for vegetables also. This was a very successful exhibition indeed for the second attempt.

EAGLESFIELD HORTICULTURAL.

SEPT. 6.—The annual show of the Eaglesfield (Dumfriesshire) Horticultural Society—a large and popular one—was held on Newlands Farm on the above date, and was very successful, the entries in all departments numbering about 3000.

Messrs. J. PALMER & SON, Annan, showed a fine stand of Roses; while Messrs. J. KENNEDY & CO., Dumfries, showed Dahlias, Carnations, Picotees, &c.; and Messrs. E. F. FAIRBAIRN & SONS, Carlisle, showed Dahlias and greenhouse plants.

Fuchsias, Pelargoniums, Roses, Asters, and Phloxes were perhaps most conspicuous; and herbaceous plants, though few in number, were good. Mr. J. GARDINER, Lockerbie, carried off the awards for the best Fuchsia and the best Pelargonium in the show.

Mr. JAS. WALKER, Thame, Oxon, Mr. CHAS. TURNER, Slough, being 2nd; and the best exhibit of twelve blooms by Mr. F. W. SEALE, Sevenoaks. THOS. HOBBS, Esq., The Cedars, had a nice collection of twelve blooms in the amateurs' classes; and Mr. S. COOPER, Hawlet, Chippenham, the best six blooms.

Cactus Dahlias were very fine, the best collection of twelve varieties in bunches being shown by Messrs. J. BURRELL & Co., Howe House Nurseries, Cambridge. Mr. W. TRESEDER, Cardiff, won 1st prize for twenty-four blooms shown on boards; and Mr. H. A. NEEDS, Heath View, Horsell, had the best exhibit of twelve blooms.

In the amateurs' classes for Cactus varieties, Mr. P. W. TULLOCK, New Church Road, Hove, won 1st prize for nine varieties, shown in bunches; Mr. L. MCKENNA, Honey's Waltham, St. Lawrence, 1st prize for six varieties in bunches; and Mr. H. A. NEEDS, 1st prizes for twelve blooms on boards, and for six blooms; Mr. ED. MAWLEY being 2nd in the class last named.

Mr. P. W. TULLOCK had the best vase of twelve Cactus blooms; Mr. F. W. SEALE, the best-arranged three vases containing nine blooms each; Mr. M. V. SEALE, the best three vases of new Cactus Dahlias; and Mr. S. MORTIMER, Rowledge Nurseries, Farnham Royal, the best exhibit of six blooms of one variety, showing the fine yellow Mrs. Ed. Mawley.

Of Pompon varieties, the best exhibit of twelve blooms was from Mr. C. TURNER. Mr. F. W. SEALE took 1st prize for twelve varieties of single Dahlias, and Mr. ED. MAWLEY 1st prize for six blooms, showing

the varieties Aurora, Naomi Tighe, Tommy, Demon, Victoria, and Polly Eccles.

TRADE EXHIBITS.

There were many of these, and some of them were of exhaustive proportions. Messrs. H. Cannell & Sons, Swanley, Kent, and Messrs. Hobbies, Ltd., Dereham, Norfolk, were awarded Gold Medals for collections of Dahlias. Other exhibitors of Dahlias included Mr. J. T. West, Tower Hill, Brentwood (Silver-gilt Medal); Mr. F. W. Seale (Silver-gilt Medal); Messrs. Dobbie & Co., Rothesay (Silver-gilt Medal); Mr. Thos. Ware, Ltd., Feltham (Silver Medal); W. Cutbush & Sons, Highgate (Silver Medal); Mr. E. F. Such, Maidenhead (Silver Medal); and Mr. J. Walker, Thame (Silver-gilt Medal). Messrs. J. Burrell & Co. exhibited a collection of Gladioli (Gold Medal); Messrs. I. House & Son, Westbury-on-Trym, Pentstemons, and other hardy flowers; Messrs. Blackmore & Langdon, Tiverton Hill Nursery, Bath, flowers of tuberous-rooted Begonias (Silver-gilt Medal); and Messrs. Hobbies, Ltd., a collection of cut Roses (Silver-gilt Medal).

ANSWERS TO CORRESPONDENTS.

AMATEURS WHO SELL SURPLUS PRODUCE: *Thornton.* The conditions under which gentlemen who sell surplus produce from their gardens, should be permitted to enter at competitive exhibitions, is a question that has caused a vast amount of discussion, and at least one society, the National Chrysanthemum Society, has found it necessary to go to law in the matter. The gentleman you describe is unquestionably an amateur as compared with an ordinary nurseryman, but you do not state whether or not this "amateur" has or has not the services of a professional gardener. If he has, then his circumstances are not those of another man who does all the necessary work in his garden himself, or employs only unskilled assistants. The word "amateur" indeed, may be interpreted to represent so many differently circumstanced individuals, that where it is used in schedules for competitive shows, it should be clearly stated who may and who may not exhibit as such. The mere fact of having sold surplus produce is hardly sufficient to disqualify a man from showing as an amateur, who in all other particulars would be entitled to do so.

BOOKS: *E. M. W. E. Smith. Alpine Garden*, by David Wooster, two vols., coloured plates, published by Bell & Sons, York Street, Covent Garden, W.C., in 1872 and 1874; *The Best Hardy Perennials for Cut Flowers*, by F. W. Meyer, published by Blake & Mackenzie, School Lane, Liverpool; *Open Air Gardening*, by W. D. Drury, published by Upcott Gill, 170, Strand, London, W.C.—*F. B.* Read *Plant Life* (Vinton & Co.); inexpensive. If there are evening classes held near you, attend them. You will learn more from a good teacher than from books.

CINERARIA PLANTS DROOPING WITHOUT APPARENT CAUSE: *Jim.* If you do not find any weevils or weevil-grubs about the plants or in the soil, you should send up a few examples for examination.

EREMURUS: *Veritas.* E. robustus grows to a height of 6 to 8 feet; E. himalaiacus 5 to 7 feet. Plant now without root disturbance, if that be possible. Like the shrubby Pæonia, they should have protection against the morning sun which injures them after late spring frosts, and shelter against E. and N. E. winds, which disfigure the foliage, should be afforded. The best kind of soil is one that is rich and loamy and deep. The root-stock may be placed 3 to 4 inches below the ground; they are quite hardy. The first has Peach coloured flowers, and the second white ones with yellow anthers.

FUNGUS THAT WILL STOP BLEEDING OF CUTS, &C: *E. H.* The common Puff Ball, Lycoperdon, when mature and in a dry state, becomes of a spongy nature, and is used by country folk for this purpose. It is not the "powder," but the substance of the fungus that is so made of use. In the very young state the large white Puffball is very good eating, cut in slices and fried in butter or the fat of bacon.

GARDENER'S LICENCE: *A Gardener.* A Briton requires no licence to pursue any ordinary occupation; we have not come to that as yet. The man in the bothy, if he is employed as a gardener, must give and take a month's notice, unless there has been gross misconduct on his part, when instant dismissal can be enforced. A garden labourer might be required to give or take a week. We fear you do not read your *Gardeners' Chronicle* very attentively.

GRAPES: *L. E. Walker.* One of the American varieties, but we are unable to say which one. It has a pleasant flavour.—*Barumite.* Such decayed examples as were those sent cannot be named. The berries were shanked badly, split, and quite destitute of bloom.

GRASS IN SEED BEDS OF CONIFERS: *D. K. L.* We should prefer to hand-weed the beds now, and prick off the seedling Conifers in March, or to keep them in the beds for a year longer. If this be done, and the soil made firm afterwards by hand pressure, the seedlings will go through the winter safely, even though a few of the grasses be left in the soil.

GROS COLMAR GRAPES CRACKING: *E. J. B.* The result probably of the great reduction of the number of the bunches, as compared with previous year's crop, and an excessively moist state of the soil, and may be to too much moisture in the air of the vinery. The variety is not liable to this malady. The same thing occurs to Plums and Cherries in a wet season.

LICHENS: *H. D. R.* These are not of horticultural interest; ask at some botanic museum.

NAMES OF FRUITS: *Subscriber, Norfolk.* 1, Diamond; 2, Plum Golden Esperen; 3, Pear Emerald; 4, Plum Diamond; 5, Victoria; 6, Apple Fall Pippin; 7, Pear Colmar d'Eté; 8, Apple Ribston Pearmain.—*Tokay.* The light card-board box sent was smashed, and the contents mixed and damaged. We rescued a few berries, but failed to identify them. If you send again select a stronger box.—*Constant Reader.* Sugar-loaf Pippin.—*T. L. J.* 1, Apricot Kaisha; 2, Apricot Peach; 3, 4, and 5, rotten; 6, Pear Early Rousselet.—*T. S.* 1, Beurré Benoist; 2, Rondelet.—*J. T.* Poor examples of Pears; 1 was rotten; 2, Robine; 3, Tyson.

NAMES OF PLANTS: *H. E.* 1, Hypericum Moseri; 2, Escallonia rubra; 3, Clematis flammula; 4, Dracocephalum virginianum; 5, Achillea tomentosa; 6, Potentilla var. — *G. G. G.* Spartium junceum. — *W. B.* 1, Cimicifuga racemosa; 2, Aralia species. Send better specimens; 3, Lysimachia vulgaris; 4, Lonicera; send when in flower.—*A. H.* We cannot name the Rubus from leaves and fruit only. The Ivy is probably Hedera helix var. gracilis of gardens.—*P. H. R.* 1, Nephrolepis pectinata; 2, N. tuberosa; 3, Adiantum Waltoni diffusum; 4, A. tenerum; 5, A. cuneatum dissectum; 6, Achillea Ptarmica.—*Ferns.* 1, Strobilanthes Dyerianus; 2, Spiræa filipendula; 3, Adiantum Waltoni; 4, A. concinnum latum; 5, Pteris serrulata; 6, Davallia elegans.—*J. M.* Abies nobilis. See *Gardeners' Chronicle*, November 29, 1879.—*Wales.* Why address the publisher on such a question? The plant is the Caper Spurge, Euphorbia Lathyris.—*Loquat.* Elæagnus pungens.—*Pteris.* 1, Pernettya mucronata; 2, Pteris serrulata cristata; 3, Pteris serrulata polydactyla; 4, Pteris serrulata; 5, Polystichum angulare proliferum.—*Orchis.* 1, Odontoglossum × Andersonianum; 2, Odontoglossum Wallisii; 3, O. × Adrianæ; 4, Oncidium Forbesii; 5, Odontoglossum Lindleyanum; 6, Miltonia Regnelli. *Surrey.* 1, Scindapsus pictus; 2, Hibiscus syriacus flore pleno; 3, Gymnogramma gloriosa; 4, Polypodium subauriculatum; 5, Asplenium alatum; 6, Adiantum capillus-veneris. The rust on Begonia leaves is common; spraying in the early stages often checks it.—*F.* 1, Hypericum Androsæmum; 2, not recognised.—*Barumite.* 1, Polypodium glaucum; 2, Polypodium aureum.—*E. W. D.* Acampe multiflora, Oncidium prætextum.—*A. C.* Thalictrum minus.

ONIONS WITH THICK NECKS AND LARGE TOPS: *W. H.* This will doubtless be the case in numerous gardens this season, more particularly if the soil is deep and heavily manured; the main causes being the heavy rainfall, and the common practice in growing Onions for show purposes of allowing each bulb a considerable amount of space. Where the bulbs are left very thickly in the lines after thinning, or the seed is sown somewhat thinly in the drills, and no thinning is carried out, the bulbs ripen well whatever the conditions of the weather during the summer, and being of moderate sizes they are more economical in use than abnormally large ones.

PEACH TREES ON A WIRED WALL: *Novice.* A mistake is often made by placing the wire 4 or 5 inches distant from the wall, with the result of creating a current of air between the trees when in leaf and the face of the wall, robbing the wall of its heat and reducing the protection afforded against frost in early spring. The wire should be fastened so close to the face of the wall that there is just room to insert the ties between it and the bricks. If this be done it offers no hindrance to laying-in the shoots, and the latter and the fruits lie close to the warm bricks, and both mature more fully and in a shorter space of time than is the case under the other plan. Ungalvanised iron wire of the thickness of the lead in an ordinary pencil, will last for twenty years under fair treatment, and if placed perpendicularly as it should be to avoid sagging, it can, when a length is broken, be easily replaced.

PEACHES AND NECTARINES: *G. C.* Nice fruits of good flavour, and considering the small amount of sunshine, highly coloured.

POPPY: *E. H.* The orange-coloured Poppy found in your garden may be a variety of the "Shirley." Can you not send a flower or two and leaves for indentification?

POTENTILLA: *C. W. D.* In the flowers you are good enough to send, the carpels are developed in the shape of small folded leaves. No seed is formed.

TO KILL MOSS ON A LAWN, WHICH HAS BEEN LAID DOWN FOR TWO YEARS. THE SOIL BEING DAMP AND SOUR: *J. C. & Sons.* Drain the lawn with rubble drains, 3 feet deep and 20 feet apart. Afterwards rake off the moss and dress it with wood-ashes and loam.

TOMATOS AND CUCUMBERS: *G. Holly.* The Cucumber-plants have received too little warmth at the roots, hence stagnation of growth in the fruit, and the dying back at the floral end. The Tomatos indicate an early stage of the Tomato-disease, Cladosporium lycopersici. You should spray with sulphide of potassium, in the proportion of ½ oz. in 1 gallon of rain-water; use once a week for three weeks. Fruits gathered during the spraying period must be washed before eating them.

TWIN APPLE: *J. S.* The union of the two fruits took place at an early stage of development. Such "syncarpic" fruits are not uncommon in Apples, Cucumbers, &c.

VALLOTA PURPUREA: *A. S. H.* There is a difference in the form of the segments of the variety from South America, but the difference in colour and size is but trifling. The segments are less pointed at the tip, and broader in the middle than in the ordinary form.

COMMUNICATIONS RECEIVED.—J. Stephenson (we have finished with these returns for this year, and cannot publish any more)—A. Roozen & Co.—E. Lemoine, Nancy—D. G. H.—G. B., Swampscott, Mass.—H. Cannell—J. R.—Bryant & May—A. H.—W. H. C.—G. W.—Mrs. Paul.—W. T. T. D.—Hugh Low & Co.—W. N.—E. C., Brixton.—J. B. C., Ceylon.—Wallach Bros.—K. M. E.—J. O'B.—S. T. D.-Ducie.—F. B.—B. D. J.—F. R.—R. N.—H. E. H.—J. Bale—H. S.—J. H. C.—E. Morland—G. H. A. B.—H. M.—T. S. Ware, Ltd.—H. W. W.—G. G.—E. J. L.—G. Goddard—A. D.—J. M. B.—W. E. W.—W. C.—W. G. S.—G. F.—O. L.—G. Smith—Betula.

(*For Markets and Weather, see p. x.*)

THE
Gardeners' Chronicle

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THE IVY.

THE lover of plant-life in all its types will scarcely need to have pointed out to him the distinctive beauties discoverable in many forms of the common Ivy, Hedera helix. The foliage, differing in shape, in venation; in habits of growth there is also great variation, some being almost prostrate and incapable of an extended climb, others clambering many feet. The hedgerow, the shady bank, and the woodland contain numberless specimens of these lowly varieties, of which it can only be said that all are beautiful, frequently covering with verdure unsightly barren places. The variety known as H. minima, a very small form of common Ivy, is charming in its way, but of little decorative value except for trailing over the stones of a rockery. For planting in such a position as this, H. conglomerata may also be utilised, with its peculiar twisted habit of growth.

For general usefulness, combined with beauty, none of the green Ivies can be compared with the well known Irish Ivy or Hedera canariensis. Planted in ordinary soil, and where the roots can obtain a sufficiency of moisture, those "hairy fibred arms" are quickly put forth, clasping in their wide embrace house or ruin, the vigorous young shoots reaching far and wide in the course of a few seasons. The companion to this, H. c. marmorata, is a fine variety; and the two mingled together make a pleasing combination, especially where large surfaces require clothing. Caenwoodiana, Rœgneriana, and palmata, are all good, quick growing species; Rœgneriana is, to my way of thinking, stiff, but usually thrives wherever planted. H. palmata is a favourite with many, and worthily so, for when covered with its glossy black berries, contrasting so well with the deep green leaves, it imparts a sense of cheery if quiet beauty. H. rhomboidea obovata should be grown by those who care for something out of the common run. Though there may be a little trouble in fastening up the growths, the large size of the leaves, alike with their unusual form, are bound to attract attention.

Of the Ivies bearing golden variegation, mention might be made of H. aurea maculata, aurea spectabilis, a. marginata, and H. palmata aurea; the last is, to my mind, one of the best of this section, though I must confess to having but small liking for the class as a whole.

Turning to the silver varieties, or those having white markings and margins, the first to claim attention is Crippsii; and though this has made but poor progress with me so far, it is when in good condition one of the best. It appears to me that these variegated Ivies are best planted at the foot of rather low walls and fences, as with a majority of the smaller-growing kinds it is useless to expect them to attain any great height, unless a considerable amount of time is allowed for growth. Mention may be made of H. elegantissima, madeirensis, marginata argentea, and marmorata elegans. From these and the others spoken of previously, a selection large enough for all practical purposes might be made. It would, of course, be possible to add many more to the list, but it is unnecessary here, and might lead to confusion.

The various methods and times for trimming Ivy for keeping in proper bounds and order, have frequently been descanted upon. I will content myself with just a few remarks in this connection. Never let the growths extend far from the wall or other surface to which the Ivy is clinging, not only is there great risk of large breadths being torn away by wind and falls of snow, but there is also the nuisance of harbouring all manner of rubbish, at variance with that orderliness which is looked for in a well-kept garden, or the proximity of a well-ordered dwelling. Unless kept in check, the growing shoots will fill gutters and spouts, will force their way in under roof-tiles or slates, and in endeavouring to obtain the light needful for their well-being lift these from their places, thus letting in rain and snow. This must be guarded against, otherwise this thing of beauty becomes the very opposite of "a joy for ever." March is a favourable time for the annual trimming and cutting back, as then there is but a short period ere the young growths quickly cover the bare spaces.

The inimical effects of Ivy on the health of trees are well known. A fine tree covered with a thick growth of Ivy may be a noble feature in the landscape, but will not long remain a valuable asset as prospective timber unless the choking suffocating influence of the Ivy is removed. *J. W.*

THE PUBLIC GARDENS, SHANGHAI.

THESE gardens are situated on the Bund, near the spacious grounds of the British Consulate, and facing the Whangpoo and Soochow creeks (fig. 76). The part containing the glasshouses, called the Reserve Garden, is separated from the main garden by the width of the Bund. Beyond this Reserve Garden, and facing the Soochow creek, is a garden allotted to the Chinese. Though only about four acres in extent, the gardens are tastefully laid out, and contain quite a number of interesting plants. In the centre of the garden is a fine band-stand, the pillars of which are covered with various kinds of climbing Roses, Clematis, Ipomœa Quamoclit, Lonicera japonica, and other climbers, the whole being surrounded with foliage and flowering shrubs. During the early summer and autumn months a first rate band is in attendance in the afternoons; in the hottest part of the summer it plays from 9 P.M. to 11 P.M., the gardens being illuminated with incandescent lights. Both gardens and band are much appreciated, and in the delightful cool of the summer evenings, with countless lights twinkling, and all the "beauty and chivalry" of Shanghai assembled, the gardens present a scene fair to look upon.

The gardens consist of a flat, narrow, more or less oval strip of ground, which gives little scope for landscape art. However, various clumps of shrubs and groups of trees, planted with much thought, considerably relieve its flatness. Facing the foreshore of the Whangpoo creek is a fine row of young Plane-trees (P. orientalis), and alongside the Bund are some very fine trees of Magnolia grandiflora. A climber-clad grotto and fountain is one of the features of the gardens. Ampelopsis Veitchi, Euonymus repens, Ficus repens, Trachelospermum jasminoides, and other climbers vie with each other in their endeavours to hide every bit of rock from the public eye. The pockets and crevices are filled at different seasons with bulbs in variety—Tulips, Lilies, Narcissi, Snowdrops, Crocus, Lycoris, &c., zonal and Ivy-leaved Pelargoniums, Cinerarias, Aspidistras, and annuals in variety.

The flower-beds and borders are arranged on a very good plan, and in summer, when filled with annual and perennial bedding plants, look very gay; Cannas, Colocasias, Bananas, Abutilons, Acalyphas, and other such-like plants thrive in the tropical summer temperature, and give a tropical appearance to the gardens. Shirley Poppies, Sweet Peas, Dahlias, Marguerites, annual Chrysanthemums, &c., all add to the gaiety of the whole. In the early spring these beds are filled with Hyacinths, Tulips, Croci, and Narcissi, with masses of Violas, Anemone fulgens, and Polyanthus Primroses. The grassy banks and lawns are also planted with bulbs after the manner of the lawns of royal Kew on a small scale. Crimson Rambler, and other newer Roses of this class do remarkably well in the gardens, and numerous trellises and pillars covered with them are quite a feature.

The gardens contain many fine shrubs and trees, though the variety is not great. Amongst shrubs good examples of the following are to be seen:—Forsythia suspensa, Kerria japonica fl.-pl., Ligustrum lucidum, L. coriaceum, Fatsia japonica, Pittosporum Tobira, Deutzia scabra, Lagerstrœmia indica, Magnolia stellata, Edgeworthia chrysantha, Ilex latifolia, Euonymus japonicus, Spiræa cantonensis and other species, Aucuba japonica in variety, and many varieties of Japanese Maples. Of trees, the gardens boast fine

examples of Cercis chinensis, Paulownia imperialis, Catalpa Kæmpferi, Ailanthus glandulosa, Populus canescens, Cinnamomum Camphora, Ginkgo biloba, and Quercus pinnatifida. Of this latter tree they possess the finest specimen I have seen outside Japan. Conifers appear to be a complete failure; ragged examples of various genera are to be met with, but they do not add to the beauty of the gardens. A good specimen of Taxus baccata and a fair Deodar are the sole redeemers of this class.

The collection of plants in the glasshouses is both large and varied. At the time of my last visit, i.e., midwinter, they were simply crammed to overflowing. Apart from the common or garden bedding plants, of which there were a goodly number, I noted, in a stroll round with the courteous and obliging superintendent, many interesting and noteworthy plants. The collection of Ferns is the underside, every branch terminating in a long thyrsoid raceme of fragrant white flowers, was a sight once seen to be remembered. Is this plant lost to our English gardens? It is not recorded in the *Kew Hand-list*.

The show-house is a curious curved-roofed, almost dome-shaped structure, unsuitable for its purpose in every way. A brick smoke-stack passes up through the centre of the house, making the whole very unsightly. A rockery around this smoke-stack, planted with Ferns in variety, Asparagus plumosus, Russellia juncea, Phyllanthus angustifolius, Abutilons, Cacti, Philodendrons, Ivy, &c., in a measure relieves its ugliness. In this show-house several of the best specimens the gardens possess are to be found, and amongst these are several fine Palms.

Taken on the whole, Shanghai residents may well be proud of their Gardens, and when the

FIG. 76.—VIEW IN THE PUBLIC GARDEN, SHANGHAI. (SEE P. 225.)

especially interesting, a magnificent Platycerium grande being, perhaps, the finest plant in the houses. Of Orchids they have only a few Dendrobiums and a fine Renanthera coccinea of note. Of general indoor plants, good specimens of the following occur:—Bignonia grandiflora, Antigonum leptopus, Euphorbia splendens, E. pulcherrima, Epiphyllum truncatum, Cereus flagelliformis, C. peruvianus, Asparagus plumosus, Cestrum elegans, Andromeda japonica, Solanum jasminoides, Cycas revoluta, Araucaria excelsa, Callistemon speciosus, Bombax malabaricum, Garcinia Mangostana, Fourcroya gigantea, Michelia furcata, M. Champaca, &c. Ordinary greenhouse plants, such as regal and other Pelargoniums, Calceolarias, Primulas, Cinerarias, Cyclamens, Gloxinias, Petunias, Phyllocacti, Hippeastrums, &c., are represented by some of the latest and best varieties and strains. A fine feature during the winter months is made of hundreds of pans of Narcissus Tazetta, the atmosphere being simply charged to overflowing with their rather too powerful odour. Buddleia asiatica, a shrub 3 to 5 feet in height, with linear-lanceolate leaves, dark green above, and with a white tomentosum on new range of houses, which the well-known Edinburgh firm of horticultural builders, Mackenzie & Moncur, are constructing for them, are completed, they will boast as pretty and useful a public garden as any municipality could wish for. In Mr. Alex. Arthur—an old Kewite—they have an ideal superintendent, and they are to be congratulated on having secured the services of such a capable, all-round man.

These gardens form, so to speak, a distributing centre for the whole settlement, and it is Mr. Arthur's aim to introduce into them all our better English strains of garden flowers, and thus improve the tone of the whole. Much has been done during the last two years, and when the new houses are complete even greater strides will be made.

Besides these gardens, Shanghai possesses a fine recreation ground of seventy acres, and has recently acquired a park of some forty acres, which will be laid out in due time. Mr. A. Arthur has control of these, and also of the rather extensive grounds of the Victoria Nursing Institute, Cathedral and Council compounds, three cemeteries, and the trees planted in all the roads. *E. H. W.*

PTERIS AQUILINA CRISTATA.

THE marked natural sports of Ferns are comparatively so extremely rare in relation to the normal forms, and they are usually found under such chance conditions, that so far, to my knowledge, no opportunity has ever presented itself for a photograph of a "find" *in situ*, with the single exception of the one which I have now a peculiar pleasure in providing (fig. 78). A year or two ago my friend and neighbour, Mr. C. B. Green, of Acton, showed me a small frond which he had found by a cart-road side in St. Leonard's Forest, near Faygate, and seeing that it was thoroughly crested instead of being merely partially polydactylous, which is by no means uncommon, I arranged with him to visit the spot and see whether better specimens could not be obtained, since my experience led me to expect that a varietal form of such a rambling species was likely to have spread. This expectation was fully confirmed, for, according to a rough estimate, the plant or plants, mingled with a large percentage of normals, extended over several acres on both sides of the road in question. We had no camera at the time, but recently paid another visit, with the results depicted. Curiously enough, we missed our way, and failed to strike the original site of the "find," but eventually, after seeing the crested form somewhat sparsely scattered among the normals over a large area, we struck a station where it monopolised the ground entirely, not a single frond of the normal type being discernible; and selecting a favourable position, a good comprehensive view was secured of this very good form.

In the immediate vicinity of this station, where the variety began to be intermingled with the uncrested form, we noted a very remarkable amount of variation in other directions, markedly crispate, and very foliose types of varied cutting cropping up in all directions. The first photo (fig. 77) shows pinnæ of these for comparison, and afford very striking evidence of the great range of form which may occur in this

FIG. 77.—VARIETIES OF PTERIS AQUILINA (COMMON BRACKEN) FOUND TOGETHER AT FAYGATE, SUSSEX. (SEE P. 226.)

1, Very foliaceous, and thin-textured; 2, Crested form, and tough; 3, Crispate form, very leathery; 4, Normal type.

FIG. 78.—COLONY OF PTERIS AQUILINA CRISTATA AT FAYGATE, SUSSEX. (SEE P. 226.)

species, under precisely similar environmental conditions. Deep shade, and shelter from wind, have considerable effect on frond development, and P. aquilina varies much from this cause alone, by becoming more foliose and spreading, while exposure tends naturally to harder and dwarfer habit. The forms shown, however, retained their characters, whether under trees or in the open, and the differences, apart from their actual structural character, cannot therefore be imputed to such local influence. *Chas. T. Druery, F.L.S., V.M.H.*

ORCHID NOTES AND GLEANINGS.

"LINDENIA."

THE last part, issued on September 15, contains coloured illustrations of the following Orchids :—

DENDROBIUM NOBILE, *Lindley*, VAR. JASPIDEUM, *Lucien Linden*, t. DCCLXXXI.—A variety with the segments not only marked towards the extremities with a deep reddish-violet blotch, but also marked with small spots of a similar colour on a whitish ground.

ODONTOGLOSSUM × ADRIANÆ, *Lucien Linden*, var. LEOPARDINA, t. DCCLXXXII.—A natural hybrid of doubtful parentage. The flowers form a five-rayed star. The segments are oblong, acute, undulate, with irregular reddish-brown blotches on a white ground; lip oblong, similarly blotched and yellow at the base.

HABENARIA MEDUSÆ, *Kranzlin*, t. DCCLXXXIII.—A Japanese terrestrial Orchid with lanceolate undulate leaves, and an erect stem, bearing a many-flowered raceme. Flowers pure white, lip three parted, each division split up into numerous long thread-like spreading segments; spur at the base of the lip, 3 cent. long.

LÆLIO-CATTLEYA × PAULI, *Lucien Linden*, tab. DCCLXXXIV.—Segments pale violet, with a faint yellow median stripe; outer lanceolate, inner obovate stalked; lip projecting, three lobed, lateral lobes infolded over the column, anterior lobe roundish, deeply notched, crimson.

KEW NOTES.

ORCHIDS AT KEW.—In the Royal Gardens at Kew there is always an interesting display of Orchids in flower, and visitors can there see many species which they have never seen before. At present there is a good display of the showy species, and some of the kinds usually termed "botanical" grown and flowered in such perfection, that they compare favourably with their generally more ornate companions. The singular scandent Angræcum Eichlerianum is a fine example of what good cultivation can do, the plant now in flower at Kew having a dozen of its large long-spurred flowers with flecky-white labellums. Angræcum striatum is a singular species from Madagascar, with curious wax-like, cream-white flowers, and several other curious species are in bloom. Cynorchis purpurascens has grown most vigorously, producing large fleshy leaves, and bearing two fine heads of purplish-rose flowers; and the smaller C. Lowii with fewer dark rose flowers appears in the same house. Eulophia Woodfordi, E. euglossa, and E. pulchra are flowering; Sobralia Lowii and S. dellensis, Dendrobium gracile, with singular pseudo-bulbs bearing white flowers; D. macrostachyum, and many other Dendrobiums; two fine specimens of Neobenthamia gracilis, with heads of white flowers with rose-spotted labellums. In one house the tall spikes of pale rose flowers of the Natal Stenoglottis longifolia are very showy. Not very long ago it was classed among the difficult species to cultivate. At Kew it grows most luxuriantly, and produces a show of flowers good enough to qualify it for market purposes.

Of the showier species in bloom are Cattleya bicolor, and other Cattleyas; some good Oncidium Papilio, a number of the showy Dendrobium Phalænopsis and D. formosum, Miltonia Regnelli, M. spectabilis Moreliana, M. Clowesii, M. candida, Odontoglossum grande, &c. Among the singular species in flower are a number of the lesser Masdevallias, Pleurothallis, and Stelis; Bulbophyllum saltatorium, Ixia disciflora, Sigmatostalix radicans, Macradenia lutescens, and other singular Orchids.

EDINBURGH BOTANIC GARDENS.

THE visitor finds much to interest in these gardens at all seasons, for, if there is nothing particular out-of-doors, there is always something good under glass. I had the pleasure of visiting it in company with Mr. Whitton, of Glasgow, in the week of the Royal Caledonian show, and we found a great deal to admire, although, as the season and the time of our visit were unsuitable for the outdoor departments, we spent most of our time in the houses. Both outside and inside the gardens were remarkably clean and well kept, and Mr. R. L. Harrow evidently means to be as thorough in seeing to the outdoor work since the additional responsibility of this has been laid upon him as he was in the glass department. The plants in the botanical arrangement have all been gone over and relabelled, and the turf and grounds were all in splendid condition. Few plants of special interest to horticulturists were in bloom outside, but among them I observed the fine Mutisia decurrens in flower on the wall of the terrace in front of the range of houses. There are some choice plants on this wall, but none among them more ornamental than the Mutisia with its orange-scarlet flowers. Years ago I saw this plant in the garden of the late Mr. Charles Jenner, near Edinburgh, where it was quite hardy, and this specimen is equally so. In a small bed I observed a fine example of Pratia angulata, than which, I question if there is a finer one in the kingdom, being three or more feet in breadth and rather more in length; the small white flowers and close growth are very pleasing. The Liatrises were also in fine condition, the most distinct being that which was named L. spicata var. montana, a dwarfer plant than any of the others that I have observed. Lupinus mutabilis var. Cruickshanki is also a good variety. A very interesting time was spent in the houses in the company of Mr. Harrow.

In the succulent-house is a very interesting and well-grown collection, though not so extensive as that at Kew. There were some of the night-blooming Cereuses, and a number of others in bud or in bloom; also some of the Mesembryanthemums. A pretty effect was remarked of a plant of the male form of Abobra tenuifolia, trained on a pillar in front of the central bed, and its growths allowed to hang down from the roof; it is an elegant plant when trained in this manner. The corridor which runs along the range of houses, which is kept at a cool intermediate temperature, is a fine feature of the gardens. In this are found a number of the finest climbers and wall plants, though there are many of these plants all over the establishment. One of special merit is Lantana camara, of which there is a good form here, with fine red and yellow flowers, and of vigorous habit; it covers a large extent of wall to the full height of the corridor. Here was also Begonia luxurians, a plant little met with and hardly known; it is a fine species for climbing purposes. Malvastrum grossulariæfolium also came in for a special note of admiration; this South African plant looked remarkably pleasing near the Lantana, with its pretty leaves and soft mauve or lilac Mallow-like flowers. Calceolaria Burbidgei was also clothing the wall for a height of 3 or 4 feet, and promises to make a fine plant for the purpose. Nothing in the whole corridor appeared finer, however, than Grevillea glabrata, hanging gracefully from the roof across the pathway; it was out of flower, but its handsome festoons of elegant foliage were very attractive. Chilianthus oleaceus, Siphocampylus lanceolatus, Solanum Rantonneti, and other good plants were also noticed. It is pleasant to see so many good climbers about, such as Passifloras, such as Hahnii and others, Tacsonias, the fine Argyreia speciosa, in a warm house, and many others too numerous to name.

I may mention, however, how finely Solanum Wendlandii was growing in the cool intermediate temperature; and also that Ipomœa Learii, which is usually grown in a stove, was flowering freely in the porch to the Nepenthes-house. This entrance-porch is kept cool, and, moreover, is made still cooler by the opening of the door on the entrance and exit of the public, who are allowed admission this way.

The Nepenthes, both those planted out and those otherwise grown, appeared to be in fine health, and possessed large and finely coloured pitchers. Mr. Harrow thinks, however, that those which are planted out do not afford pitchers so freely as the others. In the Bromeliad-house, Tillandsia magnifica was noticed as being very fine. There are a number of Darlingtonias, Droseras, and other insectivorous plants elsewhere in the houses. Among other plants remarked in this warm Orchid-house were some fine plants of the pretty Habenaria carnea; and in a cool intermediate-house, the handsome Acacia Baileyana, with glaucous leaves, and one of the most ornamental of the genus. There were also plants of the lovely Impatiens auricoma in a cool-house, the pretty Dianella cœrulea, and quite a wealth of Orchids and other flowers. For the season there was a surprising quantity of bloom on the Orchids, a fine one being Epidendrum Medusæ. *S. Arnott.*

COLONIAL NOTES.

LABOUR IN SOUTH AFRICA.

IT'S an ill wind that blows nobody good! According to the opinion of an old resident in Natal, and an employer of labour for many years, there is little but work and worry before the white man in the Cape and Natal, and the lucky natives who enlisted our sympathies as "the down-trodden race" of Africa will be the only people in affluence and ease. Our correspondent says:—"We can get little or no native labour; colonists who have had their farms wrecked can only get the damage temporarily repaired by the slow method of the work of their own hands. The war has demoralised our natives, and we, for the first time, have had to send to India for coolies. The natives have been quite spoilt by the 'Tommies,' and the wages and other benefits given to them have enabled them to save so much money that numbers of them, with the assistance of their newly-acquired knowledge of modern ways and means, will live in idleness, or close on it, for the rest of their days. The wages they are now asking, and getting too, is from eight to ten times as much as the regular native's wages were when I came to the Colony fifty years ago."

If there is a moral to be extracted from the above remarks, it is that the difficulty of getting strong drink during the war has allowed the natives to exercise habits of thrift quite opposed to their habits previously, especially in the Transvaal, where they preferred in many cases to receive their pay in part in strong drink. Even the British workman might well consider the position set forth by our correspondent with advantage.

PRESDALES.

THIS, the Hertfordshire residence of A. G. Sandeman, Esq., is situated at a short distance from the ancient town of Ware. The house is pleasantly placed on rising ground, with the flower garden and pleasure grounds stretching away in the front. The walls of the house are clothed with Magnolias, Ivies, Ampelopsis Veitchi, Roses, Jasmines, Clematis, and other plants. The flower-beds in the upper part of the garden are generally planted with bulbs for spring-flowering, their places being taken in the summer by Pelargoniums, and the usual kinds of bedding plants. White, large-flowered Marguerites are employed for filling the large vases which stand on the top of the wall. Pelargonium peltatum (Ivy-leaf) Madame Crousse being planted near the rim, so as to hang over and partly mask the vases. On the lower terrace, and adjacent to the wall, runs a border filled with Roses; and the beds on the lower terrace are planted with flowering shrubs, with Cupressus, Retinospora, and other species of Conifers. Bulbs planted in these beds make a fine display in the spring; Narcissus incomparabilis var. Stella being one that is largely employed, as owing to its tall flower-stalks, it makes a good effect when planted among shrubs. Around the margins, Hyacinths and Tulips are planted. The gardens have been till quite recently under the care of Mr. G. Fulford, who is, however, now leaving Presdales.

FIG. 79.—VIEW OF PRESDALES, HERTFORDSHIRE, THE RESIDENCE OF A. G. SANDEMAN, ESQ.

PLANT PORTRAITS.

GENTIANA ACAULIS, *Revue de l'Horticulture Belge.*

MONOTROPA UNIFLORA.—*Meehans' Monthly*, September. Grows and lives on the spawn of a fungus, and not on the roots of a flowering plant.

PEAR CONFERENCE.—*Garten Flora*, September.

SYRINGA EMODI.—*Revue de l'Horticulture Belge*, September.

MARKET GARDENING.

ABOUT CUCUMBERS.

(*Continued from p. 222.*)

IN INDIA, in the hot, dry period of the year, I have seen Cucumbers grown, and yielding enormous crops of fruit on the banks of the river Cauvery, on soil containing some 90 per cent. of pure sand, and only watered occasionally at the roots, whilst the leaves were left untouched by moisture.

A remark was made to me not long ago by a grower of experience to the effect that a goodly percentage of the produce sent to the various markets for sale, cost more in its production than the prices realised, and I am inclined to think that the truth of this statement is undeniable.

We are all aware of the frequent changing of hands of market establishments, and I deem it that the cause is not far to seek. Owing to peculiar and unscientific modes of cultivation, produce is sent to market at a ruinous cost to the producer, and when he falls out of the ranks per force, it is too often the case that his place is filled by others who follow in his footsteps to the same goal. In the case of Cucumber-growing under glass, it is, I think, highly essential for the profitable production of the fruit, to adopt methods in its cultivation other than those so frequently in evidence at the present time. The greatest drawback to profitable production is undoubtedly the limited period of the plants' existence, necessitating not only the removal and renewal of the plants, but also of the soil in which they are grown, which, of course, means a very heavy item of expenditure. To increase, then, the productive longevity of the plants under cultivation, it will be seen, is of the highest importance, and this, I hesitate not to say, can only be obtained by a radical departure from the present stereotyped character of culture and by the adoption of a more natural and rational method.

I am fully convinced that the Cucumber-plant does not require anything like the quantity of soil usually given it to grow in, nor a tithe of the water usually bestowed on its foliage and at its roots; moderation in these elements would work a revolution in our English Cucumber-producing establishments, and would soon be the means of the disappearance from our markets and shops of the products from Holland and other countries.

With regard to the pernicious effects of excessive moisture, I may say that it is sometimes seen even under natural conditions on growing plants. During the heavy monsoon rains in Malabar, South India, which fall between June and September, with of course a consequent absence of sunshine, I have seen the leaves and fruit of the bushes on a Coffee plantation turn black and fall to the ground, leaving nothing but bare branches; and this happens also to the underwood of the indigenous forests. How careful, then, ought we to be in supplying moisture to such a tender plant as the Cucumber in a climate like ours, especially during the sunless days of spring and early summer!

That thorough drainage is a most important part in the culture of the Cucumber, was forcibly brought to my notice last season by an amateur grower, who grew his plants on small heaps of soil and manure on stages previously occupied by bedding plants. The plants were put out at the beginning of June, no fire heat was used, and from July to the

end of October they yielded abundantly fruit of large size and good quality. Water was supplied only when wanted, and the spaces between the laths forming the stages supplied an admirable drainage medium, keeping the soil in a sweet condition, and the plants in a healthy state throughout.

Notwithstanding all the protests offered by the horticultural press, many growers to my certain knowledge plant their Cucumber-plants in the same soil used for the preceding crop, with the inevitable results. The ignoring of the sound advice so freely given by our horticultural journals is, to my mind, one fruitful source of our inability to banish from our shores the enormous quantities of foreign produce foisted upon us by people who cannot be but excessively amused at our want of skill and energy, which brings to them such a goodly annual harvest.

To sum up, I would venture to give the following advice to growers, or intending growers for market:—

1. Never under any circumstances use soil that has been recently employed in the cultivation of the Cucumber-plant.

2. See that the drainage is perfect, so that no water may remain in a stagnant state in the soil in which the plants grow.

3. Use soil only of the freshest and sweetest description, and this only at first in a small quantity to each plant, adding more gradually as the plants increase in vigour.

4. On no account use as an ingredient to the soil, crude, unsweetened manure. Let this be "made" as carefully as if it were to be employed in the cultivation of Mushrooms.

5. Above all things, be careful in the application of water to the roots and foliage of the plants; for, depend upon it, more failures are brought about by the excessive application of this element than from all other causes put together.

Lastly, anticipate events, and not await them. *J. Lowrie.*

The Week's Work.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Melons.—The last crops of Melons which usually finish about the middle of the month of October, require with the shortening days much care in affording water. If a good artificial fertiliser be mixed with the soil when it is put into the bed, and some is sprinkled on the surface of the bed, the foliage will be strong and leathery, and capable of resisting the attacks of insects and diseases, thus carrying it up to the ripening period in a healthy state. Maintain a night temperature of 70°, a bottom heat of 85° or 90°, and in the day time with sun-heat afford air in the morning, but close early with the heat at 90°. Do not wet the foliage or stems, but damp the paths and walls in order to supply humidity. If Melons are required in November or December, it is better to grow the plants in pots, plunging them in bottom heat, and training the bine near the roof of the house so that it may obtain all the sunshine possible. The night temperature must not be less than 70°, and one fruit to each plant is as much as it may carry. In smoky districts it is useless to attempt the cultivation of Melons late in the year.

Cucumbers.—Plants now in full bearing, if moderately cropped, and the bine well thinned at regular intervals of short duration, will continue to bear till the end of the year. If the roots appear at the surface of the bed, sprinkle a small quantity of stable-manure on the soil, or some kind of artificial manure; maintain a temperature at night of not less than 65°, and 75° to 80° by day. The syringe may not be used unless on a very bright day, but the paths and walls may be damped. The Cucumber plants that are planted at about the present time for affording winter and spring crops, should have good drainage, and a soil consisting of a rough, turfy nature. Allow the bine to grow to the top of the trellis before fruit is allowed to form, and after that point is reached, crop the plants lightly. Cover the roof with thick warm material on cold nights, and thus obviate the use of great heat in the pipes, which is sure to cause an attack of red-spider. Syringing should not be much practised, but a moist atmosphere created by damping down; apply water at the root sparingly.

Strawberries for Forcing.—If the pots are standing on coal-ashes or gravel, place them on boards or other material into which the roots will not penetrate; and stand them so wide apart that the foliage does not touch. Remove weeds from the soil, and all runners from the plants, and reduce the number of the crowns to one—the best. If worms have got into any of the pots, apply clear lime-water. When the pots are fairly well filled with roots, apply manure-water occasionally. Examine the plants daily.

Fig-houses.—The trees must be afforded the fullest ventilation, and if any plant is infested with red-spider, cleanse it occasionally with clear water, applied with the garden-engine. Pot-Figs may now be placed out-of-doors. If a tree has too many shoots, the present is a good time to remove some of them.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Bulbs.—Dutch and other bulbs should be planted in the open, or potted without delay as they come to hand. When planted in the borders, &c., the ground should be suitably prepared for them. Well-prepared beds or stations should be prepared for bulbs of very strong growth by manuring with leaf-soil, and afterwards trenching them. Early planting is of great importance, and among those bulbs which should have immediate attention are Snowdrops, spring-flowering Crocus, varieties of Chionodoxa, of Scillas, Muscari, and Narcissi. The conditions to be observed in planting are evenness of depth, which the gardener should determine according to the variety and size of the bulbs, distance apart, colour and height of plant when in flower, and the time of flowering. Most Narcissi thrive in woodland glades and natural shrubberies, and in grass if the soil is friable and of a good depth, and the dibber can be used in making holes; but where it is hard, the turf should be stripped off, the soil loosened and made friable with a digging-fork, relaying the turf after planting, the roller being run over the spot a few times, to settle the soil round the bulbs.

Lily of the Valley.—In order to keep up a succession of fine blooms, a piece of good ground in the kitchen garden, in a situation where partial shade can be obtained from large fruit-trees, should be prepared; or failing that, a border with a north or west aspect, bounded by a high wall. Work plenty of well-decayed manure and leaf-soil into the ground, and trench it 2 to 3 spits deep, according to its quality. If the soil be dry, make it compact by slight trampling before planting. Obtain the best crowns, which form at the points of the underground stems, from a bed that has become thickly crowded; cut out a small trench about 6 inches from line to line, and place the crowns in an erect position 2 inches apart, the points being just below the surface, then fill in with soil. A convenient width for such a bed is 5½ ft., and it should have an alley 18 inches wide on each side. In order to prevent the shrivelling of the crowns, which will occur if the weather is very dry and the soil light, afford enough water at planting time to make the ground fairly moist. Such crowns will not flower till the second year, crowns one year older must be obtained if they are to flower the first year.

The Flower-beds.—Keep the beds as bright as the season allows by frequently picking off dead and decaying leaves and flowers, clip the edges of the grass, and ply the Dutch-hoe amongst the plants wherever there is sufficient space, and fasten securely all sub-tropicals, many of which are still growing.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Potatos.—In fine weather continue to lift the various Potato crops, leaving the tubers on the ground for a few hours before storing them. Be careful not to store any that are in the least degree affected by disease, and store them where they can be conveniently examined. If Potato-land is foul, and the advice I gave in a former Calendar to pull up all the haulm, &c., has not been carried out, the labour involved in digging up the crop will be much increased; but it should be undertaken, and by an adequate number of men before proceeding to lift the tubers. In the case of large breadths, the haulm and rubbish should be put into heaps for burning after the Potatos have been cleared off; but in the case of small breadths, the haulm and rubbish may be wheeled to the smoulder fire. The storing of Potatos, which have to be kept for seven or eight months, requires forethought, and particularly if a frost-proof cellar or shed be not provided. An ideal store would have a roof sloping to the north, and be provided with bins for the various varieties, early, midseason, and late, constructed with 4½-inch brickwork, and running parallel with the back wall. The front wall may be 2½ feet high, the division-walls rising 15 inches higher at the back, and furnished with a wooden coping. There must be ample means for admitting air, and yet the light must be quite excluded. When the disease is very prevalent, as this year, the quantities placed in the bins should be much less than is usual in healthier years, or heating is sure to occur. In order to reduce the risk of the tubers heating, tubers should be as dry as possible before they are stored. Where no Potato-store exists, after storing a quantity sufficient for present use in some convenient place out-of-doors or under cover, put the remainder into a clamp or clamps formed on a dry spot. Make the clamps conical or ridge-shaped, cover with a 6-inch layer of straw, and as much of soil, leaving openings loosely plugged with a handful of straw about 6 feet apart along the ridge, or one in the case of a cone-shaped clamp. Potato sets should be stored in an airy shed or other building, which can be made frost-proof when necessary, or failing such place, clamp them.

Lettuce.—The black-seeded Bath Cos and Stanstead Park Cabbage-Lettuce, being hardy, should be planted in preference to less hardy varieties for standing the winter out-of-doors. A south border, or part of it, is usually given up to Lettuces, the plants being planted as they become large enough. Plant at 15 inches from row to row, and 1 foot apart in the rows. Small plants of Bath Cos may be planted alternately with the larger ones for again transplanting early in the spring to cooler quarters.

Miscellaneous Operations.—If bracken be employed to protect Celery and other plants from frost, a quantity should be cut and dried, and put into stack at an early date, as when secured at this date it is tougher, and is not wasteful, as is bracken winter-cut. Turn over heaps of stable-dung in readiness for wheeling on to the ground during the autumn; and if the dung is dryish, throw over it a sufficient quantity of the drainings from the hot-beds, for which a tank should in all cases be provided, or those from the stables or cow-sheds. Pull up weeds wherever seen in the garden, and especially around the borders. Unless settled dry weather occur, hand-weeding makes the best

job, and is the more expeditious method in a season like the present. Keep paths clean either by hoeing, hand-weeding, or applying weedkiller according to the materials of which they consist.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Roses.—The stock of plants in pots should now be examined as to the state of the roots and soil, and those which require to be repotted should have the balls slightly reduced in size before repotting them. Roses like a tenacious loam, say, of four-fifths, and to this should be added crushed bone and horse-droppings, well broken up, to the extent of one-fifth. Pot firmly, and place the plants on a bed of coal-ashes; those which are intended to be forced late being plunged to the rims, so that frost will not break the pots. Some of the plants may not need repotting, but all should be turned out and have the drainage put in good order, and the crust of soil replaced with fresh soil.

Primulas.—Remove these from cold frames or pits to the benches of low houses, where they may stay until they come into flower. Afford a somewhat humid air in the houses, and for the present no fire-heat.

Cinerarias.—The plants may be placed in the pots in which they will flower, and then be returned to the cold frames till the weather becomes frosty. This plant never does better than when grown under cool conditions, and on a coal-ash floor.

Coleus.—Cuttings may be taken, and when trimmed they may be inserted singly in 60's, and placed on a shelf in a warm pit to strike. It is a mistake to put a handlight over them, they being very apt to damp off if the air about them is confined. The aged or unshapely plants may be thrown away.

Hard-wooded Plants. — Cytisus and many other hard-wooded plants not yet taken indoors should not be left out any longer, an exception being made with Azaleas and Camellias that are wanted in flower at a late part of the spring; besides, these plants are not injured by a few degrees of frost.

Work in General.—Glasshouses and their contents should be cleansed, and worn out and unsightly plants thrown away. This sort of clearing out is the more necessary at this season on account of the great value of glass protection in the winter. If insects have been troublesome in any particular house, and all of the plants can be removed, flowers-of-sulphur should be burnt in it after stopping up all the crevices by which it might escape into the open air, or into adjoining houses containing plants.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Budleigh, Devonshire.

Pears.—The trees of Beurré d'Amanlis, Doyenné Boussoch, Fondante d'Automne, and Souvenir du Congrès, should be examined every few days, and all fruits gathered which part freely from the spur when raised to the horizontal. By this means the season during which these varieties may be enjoyed will be considerably extended. Place the fruit in the fruit-room, and in a few days it will be ready for consumption. I prefer to place Pears and Apples on the bare boards, instead of on straw or paper. Williams' Bon Chrétien is much later in becoming fit for eating this year than usually; and the trees should be inspected every day if they are to be taken at their best. If Louise Bonne of Jersey is grown on a warm wall, the forwardest fruits may be gathered in about ten days. Beurré Hardy, a delicious Pear, succeeds the first-named by a few days. It is a variety not grown so much as it deserves to be.

Plums.—The season has been very unfavourable for Plums, especially such late varieties as Monarch, Denbigh, Diamond, Belle de Septembre, Coe's Golden Drop, and Reine Claude de Bavay. The trees of these varieties should be covered with hexagon netting as a protection against wasps. Coe's Golden Drop will keep in a plump condition for several weeks after being gathered if wrapped in tissue paper, and placed on a fairly dry shelf in a cool, dry room.

Bush Fruit.—In preparing ground for Gooseberries, Currants, Raspberries, and like fruit, a liberal dressing of short stable-manure should be incorporated with the soil if the latter be in poor condition, and a change of ground should be obtained whenever possible, more especially for Gooseberries and Black Currants if the Gooseberry sawfly-caterpillar and the Currant-bud mite have infested the old bushes. It is a mistake to allow old plantations to exist, much finer fruits being obtained from young bushes. These two kinds of fruit do well on north borders, and some bushes should be planted in this position as a means of lengthening the fruiting season.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

General Remarks.—The past summer was most unfavourable to the ripening of the growths of Orchids, and the cultivator should use every means that will mature the growths before the winter sets in. It will be found an advantage to lose some of the freshness of appearance which the new growth of Lælias and Cattleyas now possess, and induce the yellow tinge of maturity by exposure to the sun. Plants with plenty of roots will soon recover a healthy green appearance when the sun-rays decline. Allow the sun to shine on the plants without hindrance, and use the heating apparatus on dull days to an extent that will permit of free ventilation. Plants which have nearly ceased to grow, as, for example, Cattleya Trianæi, C. Mossiæ, and C. Mendeli, should be kept much drier at the roots; but plants whose growth is not finished should be kept going. Where it can be arranged, the plants whose growth has ceased should be placed by themselves for ease of treatment. Lælia anceps and its varieties need no shading after this date, and much less water at the root, overhead spraying being also withheld. The new pseudo-bulbs will still lack desirable solidity; ventilation should be freely applied, and on sunless days artificial heat.

The Deciduous Species of Calanthes need to be placed thinly close to the light, otherwise the pseudo-bulbs being shaded by the ample leaves will not benefit by the sun's rays. The plants should be afforded water freely while the leaves are fresh-looking, but as they diminish less should be applied. The quantity of water should now be withheld from the old plants of Thunias, which may be placed on a shelf in a greenhouse, of which the temperature does not at any time fall below 45°. The young Thunia plants, seedlings or cuttings, should be kept in a growing state for as long a time as possible, and when growth has ceased the quantity of water afforded must be reduced by degrees, and the plants rested in a warm, dryish house.

Phalænopsis that have finished their growth should be kept rather dry; and when water must be applied, the sphagnum should be merely damped, it being very injurious to finished plants to have the sphagnum in a wet state for many hours together. If the sphagnum has grown over the crown of the plant, it should be removed from that part. On sunny days a high degree of humidity should be maintained in the Phalænopsis-house, and as few Orchids suffer more from lack of ventilation than Phalænopsis, and with much ventilation a great deal of humidity escapes.

Temperatures. — The stove Orchid-house should be kept at night at 70°, in the morning it should be 68°, rising with sun-heat to 90°, and without sun to 75°. The Cattleya-house should be kept at night at 68°, in the morning 65°, rising with sun-heat to 85°, and without sun-heat to 70°. The intermediate-house should register at night 62°, in the morning 60°, with sun-heat it may rise to 85°, and without sun to 68°. The Odontoglossum-house should be kept during the night at 55°, in the morning it should not be less than 50°, rising with sun-heat to 75°, and without sun-heat to 60°. With these temperatures air should be freely admitted by opening the lower ventilators, which should never be quite closed whilst the weather remains mild, but the amount of air admitted should be regulated in accordance with the state of the weather. When the night is warm the upper ventilators in the cold house may be left open, and the side ones till the last thing at night, if the outside temperature is not lower than 50°.

THE APIARY.

By EXPERT.

Driving Bees.—It is now a good time to get bees for the trouble of taking them, and instead of the old way of destroying them with sulphur, it is found that they are very useful in strengthening weak stocks, if you do not wish to increase your apiary, also for re-queening if you get young ones. The following method should be adopted. Apply a little tobacco-smoke at the entrance, and give the skep a smart tap, which will cause the bees to gorge themselves with honey, when they are not likely to be so troublesome. Lay a carbolic cloth down at the entrance for a minute or so, and then they will be ready to be removed in the following manner. Have another cloth just large enough to cover the bottom of the skep, and hold it in both hands from the back of the skep, and raise it up with the knee and arms, turning it right up, allowing the carbolic cloth No. 2 to fall right over it; carry away, place on the box or bucket, or whatever you have previously prepared for the purpose,; place a clean empty hive on the back, and secure it with a small skewer, and the sides with driving-irons; these are small pieces of iron turned inwards at both ends, and about 9 inches long. Gently pull back the cloth, and commence tapping with each hand, which will cause the bees from fright to run up from the full one to the one above. In doing this, bees often cluster; a stiff feather or goose's wing will be found useful to just move them a little, should they be inclined to draw round the back. Have a cloth placed round, and secure each end of the cloth with a wire nail, or tuck it inside the driving-iron. Having driven all or nearly all the bees out, remove your iron, "this from the back" first, and then the skewer, taking care not to let it slip, or you will have the bees dropping down on the ground and some into the parent stock. Cover the bees at once with a muslin or butter cloth securely, give one tie, and turn them right way up in the shade to await removal; the skep full of honey should be immediately taken away to prevent the bees robbing it, and as sometimes a few bees remain in it, it is well to destroy them. As it is annoying for people to have the bees taken into the house, a good plan is to have a cheesebox with a hole cut in the centre, and to place it over a little burning sulphur in a pit for a few seconds; place the skep on this. This method keeps the honey clean and free from soil, which is likely to collect when the hive is placed upon the soil; and again, being so far off from the burning sulphur, the honey does not acquire any taste of the latter. As soon as the full hive is taken from the stand, in the first place, an empty skep or box should be stood on so as to capture the bees that are on the wing.

Hints.—Turn out the driven bees as soon as possible. Keep a little beer-and-sugar in bottles about the apiary so as to catch wasps, &c. Keep entrances almost closed so as to prevent robbing; and if this has commenced, place a carbolic cloth in front, and lean a piece of glass up in the front. Remove all pieces of comb, and keep all honey away clear of the bees.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

SALES FOR THE WEEK.

MONDAY to FRIDAY, SEPT. 29 to OCT. 3—
Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 11 o'clock.

MONDAY, SEPTEMBER 29—
Bulbs, Violets, Palms, and Spiræas, at Stevens' Rooms.

WEDNESDAY, OCTOBER 1—
Bulbs, &c., at Stevens' Rooms.

FRIDAY, OCTOBER 2—
Collection of Orchids formed by Mr. J. T. Gabriel, and Orchids from other sources, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —54·7.

ACTUAL TEMPERATURES:—

LONDON.—*September* 24 (6 P.M.): Max. 67°; Min. 53°.
September 25.—Fine: warm.

PROVINCES.—*September* 24 (6 P.M.): Max. 59°, F. Counties; Min. 51°, Orkneys.

Chlorosis in Palms.

THE existence in some Palms (especially Kentias) of an unhealthy appearance due to yellow foliage is very common. Specimens are often submitted for our inspection, but we have never been able to offer any satisfactory explanation of the phenomenon, because it occurs in a few plants out of many hundreds or thousands growing under the same conditions. To set it down as a sign of some constitutional disorder, however correct the conjecture may be, does not help us to the reason why; and, until this is known, anything like rational treatment is out of the question. We refer to the matter now because M. LAURENT, in a recently published number of the *Bulletin of the Royal Botanical Society of Belgium*, attributes the phenomena to the existence of fatty degeneration of the chlorophyll corpuscles. Treated with osmic acid, the yellow bodies become brown, or eventually black. They are found to be soluble when heated in alcohol or in ether. Their fatty nature is in consequence assumed. In the healthy leaves the chloroplasts or chlorophyll grains are of a deep green colour, and there is no trace of the yellow bodies. The inference then is, that the latter result from the degeneration of the chlorophyll. Supposing this to be correct, we have still to ascertain the conditions which give rise to the degeneration. Some cultivators attribute it to too low a temperature, combined with an excess of moisture. It may be so; but then how are we to get over the difficulty that out of thousands of young plants growing together under the same conditions, only a small proportion is subject to chlorosis. To account for this, it has been supposed that the seeds have some of them been gathered in an unripe condition, or possibly from unhealthy plants. It may be so. In any case, M. LAURENT has rendered good service by indicating the real nature of the malady. This known, we shall probably not be long before we know whether, and how, the disease can be cured.

FABIANA IMBRICATA.—Our Supplementary Illustration affords a good idea of the capabilities of this old-fashioned greenhouse plant, when planted out-of-doors, as it may be in the south and south-western parts of England and Ireland. The plant shown was reproduced from a photograph kindly sent by Major-General LUCIE-SMITH, in whose garden at The Acacias, Worthing, Sussex, the plant is growing. This particular plant is eight years old, 5 feet in height and 8 feet in diameter, and it is growing in a loamy soil, and has never had protection from frost. At Kew, a plant of Fabiana imbricata is afforded the protection of a warm wall, and it is injured only in the most severe winters. The plant is an evergreen of Heath-like appearance; the flowers are terminal, solitary, pure white, and very numerous on healthy specimens. It belongs to the Nat. Ord. Solanaceæ, and is a native of Peru.

MR. KRUGER.—The villa at Mentone taken for the ex-President of the Transvaal is immediately opposite the public drinking-fountain erected by Sir THOMAS HANBURY in 1897, to commemorate the second Jubilee of Her late Majesty Queen VICTORIA, and as a remembrance of her residence in the town in 1882. Some plants of Phœnix canariensis planted by Sir THOMAS in front of the fountain have thriven wonderfully, in spite of occasional douches of sea water.

"SPADE WORK."—The booklet by Mr. HENRY HOARE (publisher, ARTHUR L. HUMPHREYS, 187, Piccadilly), entitled *Spade Work: or How to Start a Flower Garden*, should prove very popular. Here is an account of the necessary work, beginning with treatment of the soil, and proceeding to consideration of laying-out the plot and installing and cultivating the various plants. Alphabetical lists of familiar favourites are given, and a calendar, as well as a chronological table with dates for ordering and sowing, or planting. The practised gardener may say that he has had this information many times before, and more in detail; but the average amateur, for whose benefit it is here set forth, will welcome words of wisdom simply arranged and handy for reference.

FLAX IN IRELAND.—The Flax Supply Association report respecting 1901, that there was a substantial increase of one-sixth. The increased acreage under Flax in Ireland, as compared with 1900, is coupled with a very large yield of fibre per acre, the largest yield registered for forty-seven years, viz., very nearly 37 stone per acre. It appears that the Ulster returns were very satisfactory all round; whilst of Connaught, it is stated that the 300 acres there grown gave the splendid crop of $49\frac{9}{16}$ stone per acre, larger than that of any foreign country. It is therefore to be hoped that the average may steadily increase from year to year. The total yield of the 55,000 acres under culture was close upon 13,000 tons, a larger produce than any of the previous five years, and about equal to that of 1895.

ARBOR DAY.—It is gratifying to find that active steps have been taken to give practical effect to the suggestion made in the *Agricultural News*, of establishing an Arbor Day in the West Indies. At Trinidad, Mr. J. H. HART reports that a tree was planted on Coronation Day (August 9), in the Queen's Park Savannah, by his Excellency the Acting Governor, Sir C. C. KNOLLYS, K.C.M.G. Mr. HART continues:—"It is a practice which would tend largely to the benefit of the community, and in which the poor as well as the rich may share; and August 9 each year (a specially suitable time in Trinidad) might well be commemorated by the planting of fruit, timber, or ornamental trees." At Grenada, his Excellency the Governor planted a Genip-tree immediately after the Coronation service, in the presence of a large number of the officials and other residents of the island. Mr. BROADWAY, the Curator, reports that in all eighty-five trees were planted, some on July 2, the remainder on August 9. At Tobago and other islands also, several trees were planted on June 26, and several further Coronation trees on August 9.

PLANTS IN FLOWER AT LA MORTOLA, SEPT. 13, 1902.—The following list is printed as an illustration of one of the weekly reports furnished by his gardener to Sir THOMAS HANBURY. The perusal of the list will give some slight idea at once of the favourable climate of the Italian Riviera, near Ventimiglia, and of the richness of Sir THOMAS HANBURY'S collections:—

ANISACANTHUS WRIGHTI, *A. Gray.*—Acanthaceæ W. N. America. Small shrub, red flowers.
ANISACANTHUS COCCINEUS, O. *Kze.*—Acanth.; Mexico. Red flowers.
AMARYLLIS BELLADONNA.
ARCHONTOPHŒNIX CUNNINGHAMI.—Palmæ (the true name for Seaforthia elegans of the gardeners).
APLOPAPPUS ERICOIDES, *D.C.*—Compositæ. Small Erica like shrub, with little yellow flower-heads, from California.
CASSIA FLORIBUNDA, &c.
CEREUS BAUMANNI, *Lem.*—With irregular small red flowers. Uruguay.
CEREUS BAXANIENSIS, *Karw.*—Large white flowers. Mexico.
CEREUS MARTINII, *Lab.*—Uruguay. Large white flowers; night.
CEREUS SERPENTINUS, *D.C.*—Mexico. Night flowering; large white.
CEREUS TEPHRACANTHUS, *Lab.*—Bolivia. White, not yet open.
ECHINOCACTUS DENUDATUS, *Lk. Otto.*—Argentina.
COCOS ROMANZOFFIANA.
MAMILLARIA ELEPHANTIDEA, *Lem.*—Mexico
MAMILLARIA MACROTHELE, *Mart.*—Mexico. With many large yellow flowers.
SOLANUM WENDLANDI.
HEDYCHIUM CORONARIUM, *Koch*—Zingiberaceæ. India.
HEDYCHIUM GARDNERIANUM, *Wall.*—India. With golden flowers.
N.B.—Both these interesting plants make a beautiful show now in many places of the garden.
TECOMA CAPENSIS.
TECOMA RICASOLIANA.
HIBISCUS MANIHOT, *L.*—Tropics. With immense fine sulphur-yellow flowers, with dark purple-brown centre.
HIBISCUS ROSA-SINENSIS.—Large deep red flowers.
HAPLOCARPHA LYRATA.—Composite, like a small Arctotis. From the Cape. Yellow.
IPOMŒA LEARI.
PISTACIA ATLANTICA.—Small white flowers.
PLUMBAGO CAPENSIS.—The blue and white.
YUCCA GUATEMALENSIS.

FATE OF THIEVES.—An extraordinary fatality, the result of the attempted robbery of a gentleman's greenhouse, occurred at Ilkeston lately. A constable found three men rifling the greenhouse belonging to Mr. HOLDINGS, at Cossall, and knocked one down. He then chased the two others towards the canal, and closed with one. A dense fog prevailed at the time, and both fell into the water. The constable escaped in an exhausted condition, but the man was drowned.

Fabiana imbricata in the garden of Maj.-Gen. Lucie Smith at Worthing.

THEODOR VON HELDREICH, born in Dresden, March 3, 1822; died on September 7, 1902, at Athens, where he had been Director of the Botanic Garden since 1851. The studies of THEODOR VON HELDREICH were devoted principally to the flora of Greece, and to the "Flora Classica." Annually, since 1843, with few exceptions, he made extended travels of research through Greece, Crete, and Asia Minor. The results of these journeys are his monumental *Herbarium Græcum Normale*, which HELDREICH published from the year 1854 to his death; and his various scientific works, of which we can only mention here his *Useful Plants of Greece* (1862), his *Studies of the Plants of Homer*, and *Plants of the Attic Plains*, *Nutzpflanzen Griechenlands*, *Studien über die Pflanzen bei Homer*, *Pflanzen der attischen Ebene*. HELDREICH was also one of the most active contributors to the *Diagnoses Plantarum Orientalium*, and to the *Flora Orientalis*, of EDM. BOISSIER. The botanic section of RAULIN'S *Description Physique de Crète* is also the work of HELDREICH. Besides undertaking journeys, in the course of which this indefatigable *savant* discovered no fewer than 700 new species and seven new genera, HELDREICH found time for special studies in the subjects of Entomology, Malacology, and Palæontology. Whilst holding the appointment of Curator of the Natural History Museum of the University (1858 to 1883), he founded its Zoological, Palæontological, and Botanical Departments. The gratitude and appreciation of other men of science for the work of HELDREICH were expressed at his funeral by the President of the "Parnassos," Argyropoulos.

MR. FRANK GARRETT.—We hear that Mr. FRANK GARRETT, who has had charge of the greenhouses and flower garden at Kew for many years, is about to become gardener to His Grace the Duke of MARLBOROUGH, Blenheim Palace, Oxfordshire. A very large number of readers, who know how well his work at Kew was done, will join in our cordial wishes on behalf of Mr. GARRETT in his new sphere of work.

HOME CORRESPONDENCE.

LUCOMBE OAK.—Some words have dropped out from the second sentence of my note in the last number of the *Gardeners' Chronicle*. What I intended to say is:—"It is quite true that the bark of the fine specimen at Kew shows no obvious resemblance to that of the Cork Oak." *W. T. Thiselton-Dyer*. [The words in question are not in the original MS. ED.]

GRAPE GALAAPORT.—Messrs. G. B. & Co., August 9, 1902, ask as to the properties of a Grape grown at the Cape under name "Galaaport." In my opinion, this word is a misreading of the Colonial Dutch name for the Muscats, "Hannepoot" (Honeypot), in allusion to the exceeding sweetness of these varieties. *E. T., Grahamstown*.

SPONTANEOUS HYBRIDS.—A curious case of spontaneous hybridism has just taken place at Balkey, on the coast of Dublin Bay, eight miles or so from here. Twenty five or thirty years ago, the old S. European Senecio cineraria, was popular as a bedding plant, and Sir F. W. Brady, Bart., grew it in a flower bed at Sorrento Cottage, just over the sea. Its seeds flew to the rocky shore, and increased by the thousand. It gradually extended along the shore line until it met the native ragweed, S. Jacobæa, and this year many hybrid plants between them appeared in flower. The hybrids vary a good deal, but all appear to be biennial like S. Jacobæa, the mother plant, and are not sub-fruticose and perennial like S. cineraria, the male progenitor. This is the second instance of hybrid Senecios occurring in Ireland, between an exotic and a native species, the other being S. squalidus × S. vulgaris as found at Cork. Specimens of both may be seen at Kew Herbarium, or in the Natural History Museum. *F. W. Burbidge, Dublin*.

TROPÆOLUM SPECIOSUM.—The handsome Flame Nasturtium where it thrives well is one of the most brilliant trailing plants we have, but to many who attempt to cultivate it, it is a troublesome subject. The wall on one side of the museum at Tring has been planted with it by the Hon. Walter Rothschild, M.P., and for a long time past it has been giving a fine show of dark scarlet flowers, although this season it has, like many other garden plants, not done quite so well as in some years previously. There is no doubt that many fail to get this plant to cover walls by fastening them to wires, or nailing them, both of which methods are not suited to their slender growths. The plan adopted at Tring might in some of those cases have given better results. The wall is faced with twine netting, of the same nature as that used for protecting fruits from the ravages of birds, and that material it takes readily to. In some parts of England and Scotland it will thrive under any circumstances, but in others it requires much humouring, and the aspect in which it is planted, and the material for its support are important. *J. O'B*.

BEGONIA GLOIRE DE LORRAINE FOR SUMMER BEDDING.—This plant seems likely to prove very useful for the above purpose. At Belvoir a few aged plants that had flowered well last winter, were started into growth in a moist, warm house, then gradually hardened off, and planted out in the middle of June this year; some of them being placed in a bed that is densely shaded by a large Cedar of Lebanon. The plants soon came into flower, and have continued to flower up to the present — September 13. Others that were planted in a cooler but more open position have not done so well, although they have survived and flowered, but appear stunted. It appears, therefore, to be the very thing that is wanted for those positions in which it is difficult to get any flowering plant to succeed. I ought to have mentioned that the bed named, although densely shaded by the Cedar, and therefore dry, is in a warm, sheltered position, which appears to be necessary to the welfare of this plant. *W. H. Divers, Belvoir Castle Gardens, Grantham*.

SENECIO (LIGULARIA) CLIVORUM has been growing in these gardens since 1900. The plants were raised from seed sent home to my employer from the Western Himalayas (Kumaon) in the autumn of 1899. I sowed a portion of the seed, and I raised two plants. These, at the present time are growing in pots, but they have not flowered, and the remainder of the seed, which resembles that of Senecio vulgaris, I still retain in my possession. Whether the plants I have growing are the same as the subject of your illustrated supplement last week, I cannot exactly determine, but the description given in the *Gardeners' Chronicle* tallies exactly with the plants I have here. *W. H. Clarke, Aston Rowant Gardens, Oxon*.

A CURIOUS SUNDIAL.—Since I visited the gardens, North Mymms Park, in Hertfordshire, the residence of Mrs. Burns, some two years ago, many additions and improvements have been made by Mr. Fielder, the gardener at that place. Amongst these in one direction has been the uprooting of masses of old Portugal Laurels, and the formation of a more extensive lawn, and a big unsightly pond has been converted into a pretty lake, whose banks have been planted with shrubs and half-aquatic plants, numerous fine Nymphæas being planted in the lake itself. In yet another direction an improvement has been made in the building of a broad terrace with balustrade fronting the carriage way, and the entrance to the house has been thrown out. This is of a somewhat quaint character, the turf by which it is clothed being intersected by belts of ballast of a reddish tint, on which Box scrollwork is artistically planted. In the centre of this terrace is a square plot, which has in the middle an iron rod fixed at an acute angle pointing to the north, its point being deflected into the turf. Around, in a circular border, 2 feet wide, are large figures in Box, commencing at 5 A.M., and continuing till 8 P.M. These, with the bar on sunny days, forms the dial, and time is thus shown with fair exactness. Around the circle there is formed yet further out in the turf another border of ballast 2 feet wide, and having a quadrangular shape. Here is found in Latin letters the family motto, "Horas non numero nisi serenas," which, being roughly interpreted means, "We count not the hours that are unhappy." In two or three years the whole design will be much more clearly indicated. On a pergola, erected but two or three years ago, climbers of many species are growing with great luxuriance, as indeed do all hardy plants, especially Roses, for beds of these are indeed in glorious bloom. *A. D*.

"LADY STEWART" CARNATION.—I send some late blooms and "grass" of my new border Carnation "Lady Stewart" for your opinion. I exhibited it recently in Edinburgh, when the Committee of the Scottish Horticultural Association awarded it a First-class Certificate on September 9; on September 10, the Floral Committee of the Royal Caledonian Society awarded it an Award of Merit. I raised this Carnation from seed four years ago, and have now a stock of eighty plants. It is distinct from any other yellow, having compared it with the other well-known yellows, and the "grass" as you will see is of a sturdy habit of growth. This being a wet, cold season has caused many Carnations to burst their calyx that never did so before. Carnation "Lady Stewart" has stood the test exceptionally well in this respect, it never having shown a burst flower. *John H. Cumming*. [Fine lemon-yellow, petals smooth, double, fragrant (which is rare in yellows), good strong grass, and plant vigorous. Certainly worthy of perpetuation. ED.]

THE STRAWBERRY-GRAPE.—At a recent Drill Hall meeting Dr. Bonavia placed some bunches of his Strawberry-Grape before the Fruit Committee. We found the berries to have what he doubtless regards to be flavour, but what the committee seemed to regard as peculiar and, far from a pleasant taste. Mr. A. F. Barron said of it that it was grown in this country rather as a curiosity. Evidently it crops freely and easily, and is best grown in a pot, as it does not merit permanent planting. But whilst the Fruit Committee did not appreciate the Grapes' peculiar taste, that may of course be due to the members' palates being uneducated or demoralised. When Mr. Pearson wrote that boys did not care for it, I could but sympathise with the boys he sought to make for an experiment a *corpus vile*. Presumably, to appreciate certain peculiarly flavoured fruits, a distinctly artificial palate must be created. Yet it is odd that to appreciate Muscat Grapes, Nectarines, Green Gage Plums, Pineapples, &c., the natural palate prefers them eagerly. *A. D*.

MARKET GARDENING.—I have read with interest an article appearing in this week's number headed "Market Gardening," by J. Lowrie. In it he says that private gardeners are far in advance of nurserymen in cultivation of plants. I think he loses sight of the fact that market gardeners have to make a living profit on the crops they grow, and the private gardener does not. In how many private gardens does the produce suffice to pay for labour alone, without the hundred-and-one other expenses? He then goes on to say that Cucumbers are a crop that market growers mismanage. He says that, as a rule, Cucumber-houses are damped down or steamed up a certain number of times a day regardless of outside conditions. I have had practical experience as a Cucumber grower, and can say that this is not the rule. At times when a nurseryman cannot get experienced men he

must do as stated, but it is seldom the case. One has to remember that what a market grower wants, is not healthy plants that will last a whole season, but good fruit and plenty of it, and the system by which the majority grow on, is at present the best. It is better to grow three plants in the course of a season in one place and cut a hundred fruit, than to make one last the season and cut fifty, as the private growers do. Mr. Lowrie mentions that of all the growers he had questioned only one knew what a red spider really was. I should like to know how many private growers could tell him! Had he asked those same men to show him a red spider, or tell him what damage it did, each one could have told him. I think that few will deny that market growers under glass are the most progressive set of business men in England at the present time. Where were the acres of glass one can see in all parts of the country ten years ago, and how much improvement has there been in private gardening in the same time! The weekly advice in the gardening journals is, practically speaking, of no use whatever to market growers, as they know more than the writers. There should be a calendar each week on profitable growing, by a market grower. *T. Mathews.*

SHOWING SWEET PEAS.—Mr. Harris raises an interesting point in your issue of Sept. 13. At more than one exhibition this year I have observed collections of Sweet Peas disqualified because they were dressed up with grasses, ferns, &c. Of course, the schedules only asked for "six bunches of Sweet Peas," and, at one show, six of the competitors used either no foliage at all or only a little Sweet Pea foliage; the seventh, who had the best flowers, used grasses largely. It is rather hard, perhaps, that a man should be disqualified for using grasses, but, no doubt, the consideration the judges put before their mind is—if six competitors interpret the schedule to mean "no auxiliary foliage," their interpretation should have due weight. The only cure is to state explicitly in the schedules: "Sweet Pea foliage only to be used," or "Gypsophila and light grasses may be used." Personally, I think good Sweet Peas need no other adornment than their own foliage and tendrils. Inferior flowers can, in the hands of an expert stager, be made to look better with the aid of Gypsophila than superior ones without such aid, put up in the ordinary way. It wants very careful judging to arrive at a correct decision in a largely filled Sweet Pea class, and judges can, and should be, helped as much as possible by explicitness in schedules. Writing about showing Sweet Peas, reminds me of some remarkable bunches, which were shown at Glasgow on September 3, and awarded 1st prize. The schedule asked "six bunches Sweet Peas shown in 6-inch jasper jars." The 1st prize lot, nine bunches, were like elongated fans, probably 18 inches long by 8 inches wide, which many judges would have passed over. I certainly would have done so had I been judging, as I think all wired Sweet Peas should be passed over. *Wm. Cuthbertson.*

VEGETABLE PHYSIOLOGY.

(*Concluded from p.* 210.)

THE GERMINATION OF SEEDS. — Professor Green passed then to consider briefly another nutrition problem of a rather different kind. "They had come to the conception of the seed as fundamentally a young embryo lying quiescent within its testa, and provided with a store of nourishment deposited either within its own substance, or lying round it in the tissues vaguely named endosperm or perisperm. The nourishment had been held to be practically ready for its use, needing only a certain amount of enzyme or ferment action to be applied to it to convert the food store from the reserve to the nutritive condition. They had recognised here starch, proteids, and glucosides, and had ascertained that the embryo could furnish the appropriate enzymes for their digestion. Each reserve store had apparently been quite independent of the rest, and the embryo had had control of the whole. Certain considerations, however, lead to the view that for albuminous seeds at any rate this mode of looking at the matter was no longer satisfactory. The reserves of the seed of Ricinus were mainly composed of oil and aleurone grains, hardly a trace of carbohydrates being present. At the onset of germination there was a remarkable appearance of both cane-sugar and glucose, which increased as the oil diminished. The old view advanced to explain this fact had been the transformation of the oil directly into the sugars or one of them, a theory which it was difficult to reconcile with the chemical possibilities of oil. He had found that side by side with the appearance of the sugar there was also the formation of a considerable quantity of "lecithin," a fatty body containing nitrogen and phosphorus. The seed contained a comparatively large amount of phosphorus in the form of the well-known globoids of the aleurone grain, a double phosphate of calcium and magnesium. The occurrence of this body pointed to a considerable interaction of various substances existing in the seeds, the phosphorus apparently coming from the globoids and the nitrogen from the proteids. Instead, therefore, of the fat being transformed into sugar, it seemed certain that a very considerable metabolism was set up, in which the various constituents of the endosperm interacted very freely together.

The formation of the sugars might more probably be referred to the renewed activity of the protoplasm of the parent gametophyte than to a direct transformation of the fat under the influence of the embryo. Further researches upon a large variety of seeds appeared necessary to give a true idea of the chemical processes of germination. What now appeared probable in the case of fatty seeds might prove to be true also in the case of those which had other varieties of reserve material.

ELECTRICAL PHENOMENA IN PLANTS.

Some very striking results were only a few months ago published by BOSC on the electric response in ordinary plants to mechanical stimulation. He arranged a piece of vegetable substance, such as the petiole of the Horse-Chestnut, or the root of a Carrot or Radish, so that it was connected with a galvanometer by two non-polarizable electrodes. The uninjured tissue gave little or no evidence of the existence of electrical currents; but if a small area of its surface was killed by a burn or the application of a few drops of strong potash, a current was observed to flow in the stalk from the injured to the uninjured area, just as was the case in animal tissue. Very soon after the cessation of the stimulus the tissue recovered, and the current of rest flowed as before. Bose's investigations established a very close similarity in behaviour between the vegetable substance and the nerves of animals. Summation effects were observed, and fatigue effects demonstrated, while it was definitely shown that the responses were physiological. They ceased entirely as soon as the piece of tissue was killed by heating. This remarkable demonstration of similar electrical properties to those possessed by nerve strengthened very greatly the view of the conduction of stimuli in the plant by means of the protoplasmic threads which have been demonstrated by Gardiner and others to exist throughout the plant, uniting cell to cell into one coherent whole.

THE PATHOLOGY OF PLANTS.

In conclusion, Prof. Green called attention to the vast field opening up in connection with the pathology of plants. It was only recently that attention had been given to the broad questions of disease in plants. Even now, however, certain advances had been made, and the direction of research was taking shape. In the science of pathology, little in recent years had been so fascinating as the question of immunity against the attacks of certain diseases, either hereditary or acquired. It had been bound up with the very large question of toxins and their attenuation, their opposites, the antitoxins, and matters of a similar nature. Great results had been obtained in human pathology. He mentioned them because they were face to face with the possibility of treating some of the diseases of plants in a similar way, and perhaps on the threshold of very far-reaching discoveries. He might call attention to the researches of Ray and of Beauverie upon the general question of plant infection, and especially upon a disease set up by a fungus known as Botrytis cinerea, which attacked Grapes, Begonias, and other plants. The fungus existed in three forms, one of which was a harmless saprophyte, another a destructive parasite, and a third intermediate between the two. The first was a very common fungus, developing on decaying plants and bearing ordinary spores. The second was completely filamentous, and bore no reproductive organs. It was produced when the air was heavily charged with moisture and the temperature high, conditions of common occurrence in forcing-houses. The third was an attenuated form intermediate between the other two. It bore spores like those of the first, and in addition others which germinated without falling off the parent plant and elongated into long threads. Many plants could bear the invasion of this plant without suffering greatly, though it could not be called harmless. It occurred chiefly when a high temperature was associated with a considerable amount of moisture in the air. Researches of a somewhat kindred nature dealing with the infection of particular plants by specific fungi had been communicated recently to this section by Professor Marshall Ward in his paper read last year on the Bromes and their brown rust. They brought to light many very important facts connected with the question of adaptive parasitism and immunity.

Few questions in vegetable physiology could compare in economic importance with these when they thought of their possible development in relation to agriculture. Great hindrances to the advance of the science resulted from dogmatic assertions made by eminent men in the past, their personal influence having led to their conclusions, not altogether accurate, being nevertheless almost universally accepted. Many years subsequently these conclusions had needed re-examination, the result being the destruction of a whole fabric that had been reared upon this unworthy foundation. He might close by an appeal to the younger school of botanists to take some of this work in hand, and by assiduous and critical experiment and observation to contribute to the solution of the problems pressing upon them in this field."

Obituary.

F. MOORE.—We much regret to have to announce the death of this well known gardener, who for many years past has had charge of the gardens at Blendon Hall, Bexley. Mr. Moore, we believe, died suddenly in his chair whilst engaged in writing.

A DISEASE OF NURSERY STOCK.

DURING the past few years young Apple and Plum trees, situated in widely separated parts of the country, have suffered from a very serious disease caused by a minute fungus called Eutypella Prunastri, of Saccardo. In three known instances above fifty per cent. of the entire stock has been killed or so deformed as to be rendered valueless. Quite recently information has been received accompanied by material for investigation, showing that young Peach trees are also attacked on a large scale by the same fungus. The disease presents constant and well-marked characters, and is easily recognised. The stem is the part attacked, and the first outward indication of disease is a slight browning of the bark, which soon becomes hard, dry, and inseparable from the wood. There is no cracking or wrinkling of the surface, which presents a polished appearance. As a rule, no further symptoms are evident during the first season after being attacked, but the mycelium continues to grow inwards, killing the cambium and young wood, thus preventing the upward flow of sap; and the following season the leaf-buds either do not expand at all, or only imperfectly, and during the summer the branches die through lack of food, the bark presenting a shrivelled appearance. The fungus does not pass from the stem to the branches, the latter simply dying from starvation.

In some instances where the stem is not completely girdled by the fungus, a few branches may show signs of life the second year after the tree is attacked, but it is only a matter of time before the tree is completely killed, as the stem sooner or later is choked up by the mycelium of the fungus.

The fungus is very inconspicuous even when producing fruit on the surface of the bark of the stem, and its presence would be likely to escape notice unless specially looked for. There is no appearance of canker, and the bark is not broken up or disturbed in any way, and to the superficial observer a tree killed by the fungus suggests the idea that it has been killed by drought, or that something has gone wrong with the root.

The year following, the infection of a tree by the fungus is clearly indicated by the appearance of groups of minute transverse cracks in the dead bark, which might easily be passed over for lenticels (fig. 80 B). These cracks are in reality made by little clusters of the first or conidial form of fungus fruit, which develop in the dead bark, and when quite ripe burst through to the surface, so that the spores may be dispersed by wind, rain, insects, &c. The second year after infection, somewhat larger transverse cracks appear in considerable numbers on the dead stem (fig. 80 C). These scars correspond to a second and more highly organised kind of spore-producing structure than the one previously mentioned, and the spores from these bodies readily infect a tree when placed in a pin-prick in the bark, corresponding to a small wound made by the puncture of an insect; or when placed on the exposed surface of a twig cut off close to the stem, as in pruning.

Eutypella Prunastri is a fungus by no means uncommon on our wild, woody, rosaceous plants, as Blackthorn, Bullace, Crab, wild Cherry, wild Plum, &c.; and it is the spores produced on these wild plants that starts the disease on nursery stock in the first instance. The wild stocks frequently used are much more susceptible to the attacks of the fungus than the cultivated kinds of Plum, Apple, &c., that are grafted or budded thereon.

Although infection sometimes takes place through punctures caused by insects, especially when honey-dew is present on the stem, yet an epidemic on a large scale can only result from infection taking place through the spores of the fungus germinating in the first instance on the cut ends of twigs. In all instances, but most in the case of standards, lateral shoots are being constantly removed, and the stock is thus practically always exposed to the danger of infection from floating spores. The spores of the fungus are mature from February to April, and it would therefore be wise not to prune during this season.

PREVENTIVE MEASURES.

In the case of a young stem it is highly important that every wound made by pruning, however small, should be covered at once with a coat of gas-tar or other substance that would prevent the germination of spores on its surface. This practice should be continued until the tree is at least ten years old, when danger from this particular form of disease is passed.

Insects, and especially aphides, which secrete honey-dew, should be held in check by means of insecticides. A careful look-out should be kept to ascertain whether the fungus is present on any of the wild trees already named that may be growing in the district. *George Massee.*

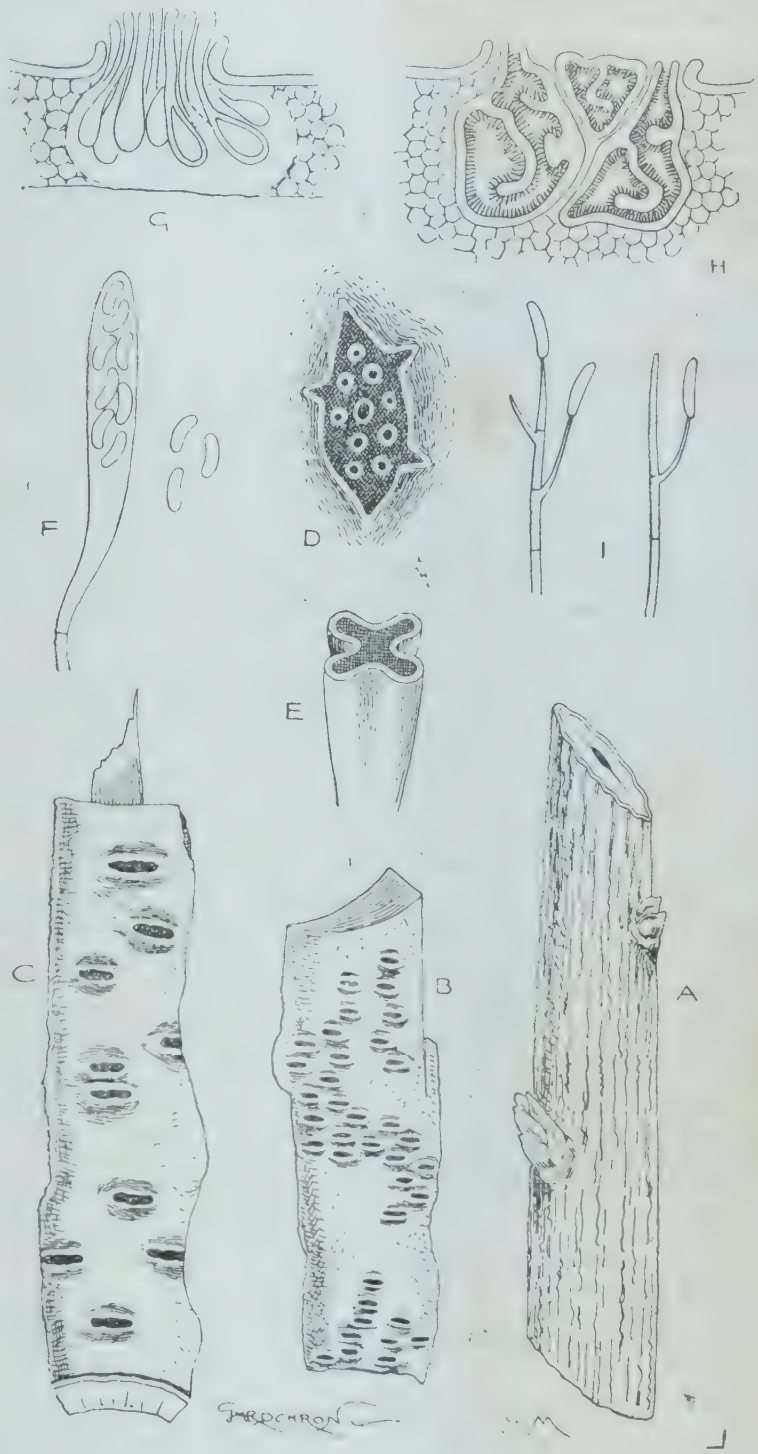


FIG. 80.—EUTYPELLA PRUNASTRI, CAUSING A DISEASE OF NURSERY STOCK.

A A young Peach branch becoming shrivelled, indicating that the stock is dying. (Natural size.)
B The conidial stage of fruit bursting through the bark. (Natural size.)
C The second or ascigerous condition of fruit showing at the surface through transverse cracks in the bark. (Natural size.)
D Surface of view of the second form of fruit, surrounded by the ruptured bark. (× 40.)
E Cruciate mouth of a perithecium. (× 400.)
F Ascus and spores. (× 400.)
G Section through ascigerous form of fruit. (× 80.)
H Section through conidial form of fruit. (× 50.)
I Conidia. (× 1,000.)

SOCIETIES.

ROYAL HORTICULTURAL.

SEPTEMBER 23.—The Drill Hall, Buckingham Gate, Westminster, was once again filled to overflowing on Tuesday last. Dahlias were at their best, and the fact that the Floral Committees of the Royal Horticultural Society and the National Dahlia Society sat separately for the inspection of novelties and granting of certificates, brought a very large number of seedling varieties to the Hall, and in addition to these several exhibits of collections of Dahlias from trade firms.

Much more important, however, than the Dahlias, as affecting the future of English landscapes, was an unique exhibit of boughs, dried specimens, and photo-

graphs of lesser known Japanese trees and shrubs, from Messrs. JAS. VEITCH & SONS, which amply illustrated a lecture upon the subject, delivered in the afternoon by MR. JAS. H. VEITCH. The Council recommended the award of a Gold Medal to the firm.

To give some idea of the work the FLORAL COMMITTEE had before it, we may say that there were 107 subjects submitted for certificate, and the Committee awarded one First-class Certificate and twenty-nine Awards of Merit, about one score of these being to seedling Dahlias. The National Dahlia Society awarded seventeen certificates.

ORCHIDS were not shown numerously, but one gained a First-class Certificate and another an Award of Merit.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. H. B. May, R. Dean, Chas. T. Druery, Ed. Molyneux, G. Reuthe, W. Howe, Chas. Dixon, George Gordon, Chas. E. Pearson, Chas. Jeffries, H. J. Cutbush, J. W. Barr, W. P. Thomson, H. J. Jones, E. H. Jenkins, W. J. James, J. H. Fitt, Geo. Paul, Ed. Mawley, Jas. Hudson, and J. Fraser.

One of the most remarkable exhibits ever brought before the Royal Horticultural Society, was that made by Messrs. JAMES VEITCH & SONS, of Chelsea, on Tuesday last. One whole side of the Drill Hall was occupied with specimens of Japanese trees and shrubs, not mere starvelings in pots, nor specimens such as a botanist could put into his collecting box but large branches extending from the floor to the gallery, from which descended fine specimens of such creepers as Vitis Coignetiæ and V. Thunbergii. The collection included specimens originally introduced from Japan by John Gould Veitch and his son, James H. Veitch, as well as by Maries and others, and comprised a selection of the most striking and interesting plants of the arboreal flora of Japan. Unfortunately, few if any were in bloom at this season, though some, such as Cornus Kousa, have been exhibited during the spring. The date was also too early to illustrate the richness of colouring which some of these trees, such as the Maples, put on in the autumn. We mention these circumstances because the exhibit, though really so very extraordinary, may not have attracted the attention of the passing visitor; and even the gardener was more attracted by the brilliancy of the Dahlias, the delicacy of the Roses, the brightness of the Gladioli, and the general beauty of the numerous flowers exhibited. Against these masses of colour the rather monotonous green of the cut branches showed to disadvantage. To the connoisseur, however, the brilliant flowers appealed with less force than the singularly interesting group shown by Messrs. VEITCH. In addition to the cut specimens, were numerous well-prepared dried specimens and photographs, which added greatly to the interest of the exhibit. If we began to specify particular trees or shrubs we should have to write a catalogue. A mere enumeration would be tedious; it must suffice to reiterate that the collection was a good illustration of the wealth of Japan in trees and shrubs, such as the Maples, the Magnolias, the Styrax, the Japanese Horse Chestnuts, the Birches, the Daphniphyllum, the Oaks, the Trochodendron - but we must stop.

In the course of the afternoon Mr. JAMES VEITCH read a paper, wherein he commented on many of the subjects exhibited, comments rendered the more valuable as coming from an eye witness of their growth in their native country, as well as of their doings in that home of wonders at Combe Wood. The Floral Committee probably felt that such an exhibition was not in their department, but the Council showed themselves alive to the importance of the exhibit by awarding it the highest award within their power, though it might have even more appropriately given it the Lindley Medal, and so revived that lapsed honour.

Messrs. BLACKMORE & LANGDON, Twerton Hill Nursery, Bath, showed a grand lot of flowers of tuberous rooted Begonias, single and double. The flowers were cut from the open ground, from plants raised from seeds in January 1902. The blossoms were unnamed, but in colour, size, and form, many of them were excellent (Silver Flora Medal).

Messrs. WM. CUTBUSH & SON, Highgate, London, N., exhibited a group of Carnations in pots. Of the Souvenir de la Malmaison type there were President McKinley, buff colour; Sir Chas. Freemantle, very rich red colour; Lady Middleton, Maggie Hodgson, maroon-crimson, &c. Tree flowering varieties included J. H. Manley, bright red colour, petals much fringed; Melba, flesh pink coloured, and Mrs. T. J. Brooks. The exhibit also included flowers of choice early varieties of perennial Asters, and perennial Phlox.

Gypsophila paniculata flore-pleno was exhibited in a small group by Messrs. D. S. THOMSON & SONS, Wimbledon Nurseries, Surrey. This variety gained an Award of Merit at a meeting of the Royal Horticultural Society on July 30, 1901, and the plants shown in pots on Tuesday last exhibited the usefulness of the variety in cases where light flowers are required.

Populus ontariensis variegata, shown by Mr. JOHN CARTER, Willow Bank Nurseries, Keighley, Yorks, is an effective Poplar, with yellow variegated foliage.

Mr. LEONARD J. CHING, The Crescent Nurseries, Enfield, London, N., exhibited a group of well-grown Ferns, all of which were healthy, bright-looking specimens. There were Gymnogrammas, Adiantum speciosum, A. cardiochlæna, Davallias, Aspleniums, Cibotiums, Dicksonias, &c. (Silver Banksian Medal).

Messrs. WM BULL & SONS, 536, King's Road, Chelsea, London, showed some choice foliage plants, amongst which we noticed Aralia triloba, with long green leaves having three lobes; Ficus radicans variegata, Dracæna Victoria, Tradescantia regina, Polypodium irioides ramo-cristatum, Maranta picta, Eugenia myriophylla, a foliage Begonia, B. President de Bourevilles, with reddish-purple leaves covered thickly with short, red-coloured hairs; and several choice varieties of Codiæum.

ROSES.

Roses were shown grandly for so late in the season. A very nice collection of twenty-seven varieties came from the garden of LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House, Acton (gr., Mr. J. Hudson), and they were displayed to good effect. These autumn-blooming varieties included Caroline Testout, Corallina, Madame Lambert, Rêve d'Or, and Viscountess Folkestone (Silver Flora Medal).

Messrs. FRANK CANT & CO., Braiswick Nurseries, Colchester, exhibited about forty bunches, set up in green vase-like tins, upon shelves covered with green cloth, as one would expect to see them in June. Some of the varieties were shown in really good condition, as Geo. Nabonnand, Souvenir de J. B. Guillot, Madame Pierre Cochet, Irene Watts, Queen Mab, and others (Silver-gilt Banksian Medal).

Mr. GEO. PRINCE, of Longworth Nurseries, Berks, had a great variety of Roses, arranged in vases, Bamboo-stands, and other receptacles, over black velvet. Such varieties as White Maman Cochet, Catherine Mermet, Meta, Mrs. John Laing, Muriel Grahame, Madame A. Chatenay, Marquise de Salisbury, Mrs. E. Mawley, and Madame Jules Grolez, are only a few of the varieties exhibited, but they were exceedingly effective (Silver-gilt Flora Medal).

Messrs. W. PAUL & SON, Waltham Cross Nurseries, Herts, made a wonderful display of late blooming sorts, including many seedlings of their own raising. The richly-coloured Tea Corallina was splendid, also Madame Ravary, Queen Mab, Frau Karl Druschki, Souvenir de J. B. Guillot, Madame Abel Chatenay, A. K. Williams, The Alexandra, Madame Hoste, &c. (Silver Flora Medal).

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, London, N., made a gorgeous display, in which we noticed nice bunches of Bourbon Mrs. Paul, W. A. Richardson, Paul's Cheshunt Scarlet, Purple East, a semi-single Rose of effective colour and size; Caroline Testout, Corallina, Killarney, La France, Gruss an Teplitz, &c. (Silver Banksian Medal).

Mr. G. W. PIPER, Uckfield, Sussex, exhibited blooms of the new late-blooming Tea Rose Peace, which gained an Award of Merit recently, also several other good varieties.

CHRYSANTHEMUMS.

Mr. ROBT. FOSTER, Nunhead Cemetery, S.E., exhibited a group of early-flowering Chrysanthemums in pots, interspersed with a few Ferns and other decorative plants; also Cypripedium insigne, &c. (Silver Banksian Medal).

Messrs. W. WELLS & CO., Ltd., Earlswood, Redhill, Surrey, made a very bright display of Chrysanthemums from the open garden. The huge bunches of Crimson M. Massee, Charles Joly, Goacher's Crimson, Horace Martin, Ralph Curtis, and the smaller flowered section, as Flora, Canari, Mrs. E. Stacey, &c., with flowers perfectly developed, were much more than could have been expected in such a season as the present. There were several new varieties of the small Japanese or decorative type. These included Carrie, rich yellow; Polly, yellow and bronze colours; and others (Silver Banksian Medal).

The most important exhibit of flowers from the open garden was a grand collection of Gladioli, from Messrs. J. BURRELL & CO., Howe House Nurseries, Cambridge, which included about 150 flower-spikes. There were so many varieties staged of excellent merit, and unnamed seedlings also, that it would be useless to particularise. Thirteen fully-expanded flowers upon some of the spikes, attested to the successful cultivation afforded the plants at Cambridge. A yellow variety known as Casildo, was very distinct (Gold Medal).

Two dozen flower-spikes of varieties of Gladiolus were sent by Mr. WM. PFITZER, nurseryman, Stuttgart, Germany. They were fine, bold-flowered varieties, especially the white ones; but they were not more remarkable than others from English cultivators. Spikes of Montbretia Germania from the same exhibitor were exceedingly fine, the flowers being 2 inches across, and of rich orange scarlet colour.

Messrs. BARR & SONS, King Street, Covent Garden, London, W.C., exhibited a collection of flowers of perennial Phloxes, with spikes of Tritoma, and some very fine flowers of Vallota purpurea.

Messrs. PAUL & SON, The Old Nurseries, Cheshunt, showed some good late-flowering hardy flowers, including the perfectly yellow Coreopsis lanceolata, Helianthus mollis, Rudbeckia rosea elegans, and some choice varieties of herbaceous Phlox. Pans of the hardy Cyclamens, C. hederæfolium and C. H. album were pretty. The flowers and foliage had been gathered from out-of-doors, and inserted in pans containing damp sand.

Mr. THOS. WARE, Ltd., Hale Farm Nurseries, Feltham, exhibited a group of Dahlias, Gladiolus, Pentstemons, Perennial Asters, Pyrethrum roseum, &c.

Messrs. R. WALLACE & CO., Kilnfield Gardens, Colchester, exhibited hardy flowers, including some choice late flowering Lilies, Gladiolus, Sternbergia macrantha, and lutea. L. speciosum Krætzeri and L. S. album novum are very desirable varieties, the latter appearing to be a yellow-anthered form of Krætzeri, with broad petals. L. Henryi and L. Leichtlini were charming (Silver Banksian Medal).

FIRST-CLASS CERTIFICATE.

Polypodium conjugatum.—This was shown by Messrs. W. BULL & SONS, Chelsea. The plant had five fronds, the longest of which was nearly 5 feet in length. These fronds are divided nearly to the rachis into lobes about 7 inches long or less, of bright green colour.

AWARDS OF MERIT.

Chrysanthemum "Carrie."—A pure yellow, early-flowering decorative variety of the Japanese type. Shown from the open border by Messrs. W. WELLS & CO., Ltd.

Chrysanthemum "Gertie."—A large flowered Pompon variety, in which there are shades of yellow, bronze, and pink. Shown from the open border by Messrs. W. WELLS & CO., Ltd.

Gaillardia oculata "Sulphur Gem."—A pale sulphur-coloured variety of G. grandiflora of excellent form. Shown by Mr. B. LADHAMS, Shirley, Southampton, who had many other good varieties, with different degrees of colour.

Liatris graminifolia var. dubia.—A very fine purple Liatris growing 6 feet or more high, bearing flowers for 2½ feet length of stem. Brighter in colour than any other Liatris. Shown by Messrs. WALLACE & CO.

Lilium Brownii var. chloraster.—This is a variety with shorter, more spreading flowers than those of the type. Colour, white or cream-coloured with very little reddish-brown colour on exterior of petals. The plants shown by Messrs. JAS. VEITCH & SONS were two feet or less high.

Lobelia × Andrew Barlow.—A hybrid, combining the characteristics of L. cardinalis and L. syphilitica, but having been crossed several times, it contains more blood of the latter species than of the former. The leaves of the hybrid are purple, and the flowers plum colour. These crosses were not only very pretty, but are described as being more hardy than L. cardinalis. Shown by Mr. LADHAMS, nurseryman, Southampton.

Lobelia × Purple King.—Another hybrid of the same character as the one above. The leaves are green, and the flowers violet-purple. Both varieties grow about 2½ feet high. Shown by Mr. B. LADHAMS.

Rose Sulphurea.—A sulphur-yellow-coloured Tea variety, most useful for decorative purposes. Described as of excellent constitution. Shown by Messrs. W. PAUL & SON, Waltham Cross.

Rose Madame Antoine Mari.—A decorative Tea Rose of nice form. Colour creamy-white, outer petals rose coloured. A distinct and attractive variety. From Messrs. W. PAUL & SON.

DAHLIAS.

Collections of Dahlias made a very fine feature indeed, the Cactus type greatly preponderating. HOBBIES & Co., Ltd. (John Green), Dereham, had in the centre of the Hall a very fine bank, which comprised 200 bunches of Cactus varieties, and in addition a front line of varieties of the same type shown in squares of twelve blooms, and in two or three cases of six blooms only. There were 700 blooms in the front line; chief among the bunches were Floradora, Vesta, Alpha (striped purple-crimson on a white ground), Loogalu, Uncle Tom, Mrs. E. Mawley, Lottie Dean, Gabriel (pale red, tipped with white), Lord Roberts, Miss Winstanley, Rosine (bright rosy-pink), Lord Brassey, Columbia (tipped with white on an orange-red ground), J. W. Fife (crimson-purple—one of the very best of this colour), Miss G. Cook (deep pink), Aunt Chloe (very dark), and Island Queen. Conspicuous among the varieties shown in dozens were Sailor Prince, Clara G. Stredwick, Richard Dean, Gabriel, Lottie Dean, J. W. Wilkinson, Hetty Dean, John Burns, Vesta, Galliard, very bright; Winsome, Mrs. J. P. Clarke, Lyric, Fred Cobbold, &c.; and in addition, some plants of a small flowered single miniature strain, growing to a height of 18 inches.

Messrs. KEYNES, WILLIAMS & Co., Salisbury, had a small collection made up mainly of novelties in Cactus, which included Miss T. Cherry, Sunrise, yellow, flushed at the base with delicate salmon; Clarence Webb, Coronation, Princess, The King, deep shaded red; Prince of Orange, a very fine bright yellow, the extremities of the petals cinnamon-red; Maid of Honour, the centre warm rosy-pink, paling to delicate blush-pink on the tips, &c.

Messrs. J. STREDWICK & SON, Silverhill, St Leonards-on Sea, had a batch of ten new varieties, of which nine received awards, which is suggestive of the very fine quality of the new productions of this firm. We are indebted to Messrs. J. STREDWICK & SON for the introduction of the novel striped varieties, of which Alpha was the first; Comet, Vesuvius, &c. They also had Goldfinch, and Lilac, very pleasing; and Mary Farmsworth, deep yellow with white tips.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, had a fine collection of Dahlias, consisting largely of single-flowered varieties, of which there were forty-eight bunches, among them Violet Forbes, Columbine, Meta, Maid of Athens, Flame, Robin Adair, Duchess of Marlborough, Veronica, Beauty's Eye, Hilda, Harry Braten, Irene, Miss Roberts, Puck, Aurora, &c.—a selection which comprises some very attractive varieties. Of Cactus Dahlias, there were Columbine, Floradora, Lyric, T. H. Jackson, a fine dark variety; Ajax, J. W. Wilkinson, Mrs. H. J. Jones, &c.; and of Pompon varieties, Nerissa, Ernest Harper, Captain Boyton, &c.

Messrs. J. BURRELL & Co., Howe House Nurseries, Cambridge, had chiefly new Cactus varieties, including Phineas, bright orange red, very good; Mrs. E. Mawley, Ibis, shaded apricot, novel and distinct; Pleasaunce, yellow centre suffused with deep pink, a pretty and pleasing variety; J. W. Wilkinson, Ida, yellow; Albion, white; Hubert, bright crimson; Vesta, Ianthe, salmon, &c.

Mr. J. T. WEST, Tower Hill, Brentwood, had a collection of various types, including several stands of unnamed show varieties; and of Cactus, bunches of Mrs. E. Mawley, Clara G. Stredwick, Minnie West, very pretty; Lyric, Cissy, bright crimson; Mrs. J. J. Crowe, &c.; and in addition a number of Cactus blooms on boards, and several bunches of pompon varieties, including Emily Hopper, Sunshine, Sunny Daybreak, Nerissa, Dr. Jim, Whisper, Eva, Darkest-of-All, Adelaide, &c.

Mr. W. BAXTER, Dahlia specialist, Woking, had twelve bunches of pompon Dahlias, which included Darkest-of-All, Ganymede, Nerissa, Hypatia, &c.; also four boards of Cactus blooms, and bunches of the following: Lyric, J. T. Hudson, Vesta, Mrs. J. J. Crowe, Mrs. H. J. Jones, Gabriel, Alpha, J. W. Fife, Ringdove, Mrs. H. A. Needs, brilliant deep scarlet; &c.

Mr. M. V. SEALE, Vine Nursery, Sevenoaks, had single-flowered Dahlia Norma, very pleasing in colour, mauve-tinted salmon, large in size; a few Pompons, and also new Cactus varieties.

Mr. C. TURNER, Royal Nursery, Slough, had some new Cactus varieties, which included Slough Rival, a striking, large, dark flower; Matador, pale salmon-red; &c., including Nana, a small-flowered, orange-crimson variety, for decorative purposes; and some pretty new Pompons, viz., Elsa, white; Cyril, crimson; Mephisto; Imogene; Galatea, cerise-crimson; Minnie, orange-red, tipped with yellowish-red, &c.

Messrs. PAUL & SON, Old Nurseries, Cheshunt, had the two new Collerette varieties, President Viger and Jean Goujon; the last named the most attractive, and having a collar of yellow florets, while those of the former are white; and also a bronzy-foliaged single Dahlia named laciniata purpurea, having dark flowers, freely produced.

Mrs. ST. PIERRE HARRIS, Orpington, Kent, had in addition to A. M. Burnie show Dahlia, a yellow Self also named Queen of Primroses, but two much like Mabel Stanton.

NEW DAHLIAS.

AWARDS OF MERIT.

Dahlia (Show), A. M. Burnie.—A finely formed flower, with a close high centre and good outline and petal; colour, orange-buff, darker at the base. From Mrs. ST. PIERRE HARRIS, Scads Hill House, Orpington.

Dahlia (Show), Mrs. W. Treseder.—Pale ground, edged with bright rosy-carmine; novel and distinct; fine outline, petal, and centre. From Mr. J. T. WEST, Tower Hill, Brentwood.

Dahlia (Cactus), Winsome.—White, with long claw-like florets. A large full flower of the finest quality, shown on long stiff stems. From HOBBIES & Co., Ltd. (John Green), Dereham.

Dahlia (Cactus), Albion.—White, with well formed florets spread out more horizontally than those of the preceding; a pure white variety of the finest character, borne on excellent stems. From Messrs. J. BURRELL & Co, Howe House Nurseries, Cambridge.

Dahlia (Cactus) Coronation.—Brilliant red; a small finely-formed flower of the best Cactus character, recommended for garden decoration; it is said to be of good habit, very free, and to throw its flowers well above the foliage. From Messrs. KEYNES, WILLIAMS & Co., nurserymen, Salisbury.

Dahlia (Cactus) Miss T. Cherry.—A lovely variety of excellent shape and substance; colour bright rose-pink, suffused with yellow. From Messrs. KEYNES & Co.

Dahlia (Cactus) Clarence Webb.—A fine full flower, with incurving claw-like florets, of a dark rosy-salmon colour, extra fine. From Messrs. KEYNES & Co.

Dahlia (Cactus) Lucifer.—Bright orange-salmon, with reddish-crimson centre, a large full flower of fine form, which will be telling as an exhibition variety, but is somewhat short in the stem. From P. W. TULLOCH, Esq., Hove, Brighton.

Dahlia (Cactus) Manxman.—A bold and striking flower. Colour soft scarlet, shading away to purple, orange centre, bold and erect on stiff stem. From Mr. S. MORTIMER, Swiss Nursery, Farnham.

Dahlia (Cactus), F. W. Balding.—A fine Cactus type, bold and showy; centre yellow with pale salmon basal florets.

Dahlia (Cactus), Raymond Parks.—A bold flower of a bright orange-crimson colour; fine for exhibition.

Dahlia (Cactus), H. J. Jones.—Delicate primrose, the long basal petals deeply tipped with white; a bright and effective variety.

Dahlia (Cactus), Etna.—One of the most novel and distinct varieties of the season; colour bright slaty-lilac, shot with yellow; a good sized, full flower of excellent shape.

Dahlia (Cactus), Vesuvius. — One of the new fancy striped varieties; the ground colour yellow, with pencilled lines and flakes of crimson; extra fine.

Dahlia (Cactus), Eva.—A finely formed flower of the purest white, with slight primrose centre; very attractive from its purity.

Dahlia (Cactus) Mabel Tulloch.—Rosy-pink, with slight rosy centre; a charming flower, of a cheery and attractive character.

Dahlia (Cactus) F. H. Chapman.—Yellow, overlaid with deep orange; a fine-formed and taking flower of the best character.

The foregoing eight varieties were from Messrs. J. STREDWICK & SON, Silverhill, St. Leonards.

Dahlia (Cactus) Minnie West.—Bright primrose-yellow, with deep tip of white to the florets; a delicate and pleasing variety. From Mr. J. T. WEST, Brentwood.

Dahlia (Pompon) Rosea.—Of a delicate pinkish-rose, very pleasing in tint, good petals and shape, close centre. From Messrs. KEYNES & Co.

Dahlia (single) Snowdrop.—A beautifully-formed flower, pure white on the margins, with a slight yellow circle round the eye; a valuable addition to the white single Dahlias. From Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley.

Dahlia (single) Serita.—Rosy-crimson, with a deep crimson zone round the eye; a small flower of good substance, and excellent form. From Messrs. J. CHEAL & SONS.

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. Jas. O'Brien (Hon. Sec.), J. Gurney Fowler, G. F. Moore, E. Ashworth, R. Brooman-White, J. Wilson Potter, H. M. Pollett, H. Ballantine, E. Hill, J. Douglas, W. Cobb, J. Charlesworth, J. Cypher, F. J. Thorne, J. W. Odell, W. Boxall, W. H. Young, H. A. Tracy, H. Little, and F. W. Ashton.

There was a fine display of Orchids, the species, hybrids, and "botanical" kinds being well represented. In the last-named class the Hon. WALTER ROTHSCHILD, M.P., secured a Silver Flora Medal for an interesting collection of singular species of Masdevallias, Pleurothallis, &c. The group included Masdevallia ignea Stobartiana, M. × Rushtoni, M. × Measuresiana, M. erythrochæte, M. macrura, M. maculata superba, M. ionocharis, M. calura, M. × Gairiana, M. floribunda, M. Estradæ, M. Carderi, M. nycterinia, M. triaristella, M. gemmata, M. muscosa, M. nidifica, and other Masdevallias; Pleurothallis macroblepharis, and other Pleurothallis; Cryptophoranthus Dayanus, and an allied new species, Scaphosepalum ochthodes; Cattleya × fulvescens, with pretty pinkish-orange flowers; and two other hybrid Cattleyas; the scarlet Ornithidium Physosiphon Loddigesii, Restrepias, &c.

Messrs. JAS. VEITCH & SONS, Chelsea, secured a Silver Flora Medal for an excellent group of hybrid Orchids, two of the most striking of which were Lælio-Cattleya × Remula superba (L. tenebrosa × C. Aclandiæ), a showy flower, with Indian yellow sepals and petals, and rich violet purple lip, finely displayed; and Lælio-Cattleya × Bella var. Langleyensis (L. purpurata × C. labiata), a very showy and finely-formed flower; for varieties of both of which Messrs. Veitch had previously received awards. Also well shown in the group were good forms of Lælia × splendens, and L.-C. × Bryan, both with some resemblance to the favourite L.-C. × Etoniensis; Cattleya × Chloris, Lælia × Pacavia (tenebrosa × purpurata), Cypripedium × Madame Truffaut, L.-C. × Bletchleyensis, L.-C. × callistoglossa, Cattleya × Ophir, C. × Clytie, and others.

Messrs. HUGH LOW & Co., Bush Hill Park, were awarded a Silver Flora Medal for an effective group, in which were two splendid plants of Cattleya × Hardyana, and C. × Hardyana enfieldensis, the latter being a remarkably large and pretty form, showing much of the colouring of C. aurea, but with a glowing ruby-crimson lip. Fine specimens of Dendrobium formosum giganteum, one of them with over thirty flowers; two clear white Cattleya Gaskelliana alba, and one C. Eldorado Wallisii; C. × Mrs. W. J. Whiteley, C. × Maroni, a pretty form of C. × mollis (Gaskelliana × superba), C. × Minucia, C. × Mantini, a fine specimen of C. bicolor, and of the allied C. Grossii, were also in the group.

JEREMIAH COLMAN, Esq., Gatton Park (gr., Mr. W. P. Bound), was awarded a Silver Banksian Medal for a well-arranged group, the central plant in which was the handsome Cattleya × Hardyana, "Mr. Jeremiah Colman," one of the richest coloured of its class. The sepals and petals were purplish-rose, the large labellum crimson-purple, with very fine gold lines on the disc. Other good plants included were, Miltonia Regnelli citrina, and M. R. Gatton Park variety, both with yellow sepals and petals, and purple tinted lip; the latter being the better one. Cattleya Mendeli superba, good varieties of Lælia pumila, the handsome Lælio-Cattleya × Colmani (C. aurea × L.-C. × Arnoldiana), a good L.-C. × Henry Greenwood, Lycaste leucantha, Masdevallia Veitchi, &c.

Messrs. STANLEY, ASHTON & Co., Southgate, staged a good group of finely-flowered Cattleya aurea and C. Loddigesii, the blush-white C. Loddigesii delicata being a very distinct form. The showy Cypripedium × Neptune (Io grande × Rothschildianum) was also shown.

H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), showed a group in which were Cypripedium × Thurgoodi, a C. bellatulum cross with cream-white flowers densely spotted with purple; C. × Felicity, a very delicately-tinted hybrid of uncertain parentage; good Cattleya × Maroni, Odontoglossum × Adriana "Mirikin," a pretty cream-white flower, finely blotched with brown; O. Uro-Skinneri, Oncidium Lanceanum, Sophro-Cattleya × eximia, &c.

FRANCIS WELLESLEY, Esq., Westfield, Woking, showed Lælio-Cattleya × Schilleriana, "Westfield variety," one of the finest of its class, the flowers being large and

well formed, the rich rose-purple front of the labellum being unusually broad. Mr. WELLESLEY also showed Cattleya aurea, and C. × Hardyana, "Westfield variety," both fine in colour.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, staged a collection of very beautiful hybrids, two of which secured Awards. They included the fine Cattleya ×Iris, two very pretty and delicately tinted Lælio-Cattleya × Gottoiana, Cattleya × Hardyana, C. × Miss Williams, Lælia × Iona, &c. The group contained also a fine specimen of Angræcum Ellisii, and Catasetum Bungerothi.

Messrs. SANDER & Co., St. Albans, showed a group of Orchids, in the centre of which was a noble form of Lælio-Cattleya × Henry Greenwood, with very fine flowers with claret-crimson lips; a good L.-C. × Bletchleyensis; Cattleya × Lord Rothschild; Cypripedium × Leeanum molle, with green-tinted flowers, very sparsely spotted, and with a clear white colour on the upper half of the dorsal sepal.

Col. BRYMER, M.P., Dorchester (gr., Mr. Denny), sent Cypripedium × Umlauftianum "Brymer's variety" (Lawrenceanum × insigne montanum).

Mr. J. CYPHER, Queen's Road, Cheltenham, showed Lælia pumila præstans "Cypher's variety," a clear white flower, with dark crimson markings on the lip; the handsome Cypripedium Charlesworthi marginatum, with nearly white upper sepal, the base and margin being tinged with rose; good varieties of Odontoglossum crispum, Cattleya × Mantini inversa, Cypripedium niveum, and C. × Vipani.

M. A. A. PEETERS, St. Gilles, Brussels, showed Lælio-Cattleya × Andreana "Peeter's" variety, Miltonia × Peetersiana, and Cattleya aurea "Memoria Queen Marie Henriette," with cream-white sepals and petals, purple lip, with gold veining at the base.

Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), showed Cypripedium × Muriel Hollington.

Mr. ED. KROMER, Bandon Hill, Croydon, showed Epidendrum floribundum.

M. CH. BERANEK, Rue de Babylone, Paris, showed the singular hybrid Lælio-Cattleya × Lutetia (C. velutina × L.-C. × elegans Turneri), with narrow buff-coloured segments veined with purple, and purple front to the lip.

Awards.

FIRST-CLASS CERTIFICATES.

Cattleya × Iris Charlesworth's variety (bicolor × Dowiana aurea), from Messrs. CHARLESWORTH & Co., Heaton, Bradford.—A fine advance on the two of this showy hybrid previously certificated. Sepals and petals of a rich bronzy-yellow; lip dark rose-crimson, the front lobe very broad, and crimped at the margin.

AWARD OF MERIT.

Lycaste × hybrida (? Skinneri × Deppei).—From Messrs. CHARLESWORTH & Co. A very pretty natural hybrid, in some respects approaching that which has appeared in gardens as L. Deppei punctatissima. The flowers were white, and all the parts were spotted with purplish-rose.

Cattleya Grossii.—From Messrs. HUGH LOW & Co., Bush Hill Park. A supposed natural hybrid of C. bicolor, and bearing a strong resemblance to C. elongata (Alexandræ). Several varieties were shown, the greenish sepals and petals being in some cases spotted with brown. The labellum is shorter and broader than C. bicolor, the tint varying from rose to light purple.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq., Chairman; and Messrs. H. Eslings, W. Bates, S. Mortimer, Alex. Dean, Geo. Kelf, W. Pope, Ed. Beckett, G. Reynolds, Jas. Smith, Geo. Norman, Geo. Wythes, W. Poupart, Owen Thomas, and Jas. Cheal.

Mrs. NIX, Folgate, Crawley, Sussex (gr., Mr. P. Neal), showed a collection of hardy fruits, some Melons, and black Grapes of such a high degree of merit, that a Silver-gilt Knightian Medal was awarded the exhibitor. The Melons consisted of Invincible, a netted green-fleshed variety; Ringleader, white-fleshed; Hero of Lockinge, Hero of Isleworth, green-fleshed; Ne Plus Ultra, and Countess. The Plums were a choice lot, and we remarked Jefferson, Cooper's Black, Diamond, Golden Transparent, Transparent Gage, Reine Claude de Bavay, &c. The Apples were in some cases large of size, high in colour, and generally clean of skin. Good examples were noted of Royal Jubilee, Peasgood's Nonsuch, The Queen, Mère de Ménage, &c. Pears, about as numerous as the Apples, consisted of good fruits and choice varieties, but they were in some instances immature. Beurré d'Amanlis, Marguerite Marillat, Durondeau, Marie Louise d'Uccle, Doyenné Boussoch, Marie Louise. Glout Morceau, Beurré Bachelier were among the finer ones. A few Peaches, viz., Walburton Admirable, Princess of Wales, Nectarine, and Sea Eagle were comprised in the collection.

W. H. EVANS, Esq., Forde Abbey, Chard, Somersetshire (gr., Mr. J. Crook), contributed a small collection of Plums, viz., Magnum Bonum, Coe's Golden Drop, Reine Claude de Bavay, &c. He also showed a few Apples, and a dish of Peaches.

Mr. R. D. HUGHES, 35, Middle Lane, Denbigh, showed fruits of Late Moor Park Apricot, as yet barely ripe.

Mr. W. G. GODFREY, Exmouth, showed Apples.

Mr. ROLFE, Lawn Cottage, Barnet, showed Apple Mrs. Rolfe, an early variety with the tints of Emperor Alexander.

Dr. STOCKER, Avery Hill, Eltham, Kent, showed six magnificent fruits of Peach Lady Palmerston.

E. J. CLARKE, Esq., Manor House, Binbrook, Market Rasen, showed fruits of Pear Winter Windsor, a handsome old English variety of little merit.

Melons were shown by V. ASHTON, Esq., and H. E. BROWNE, Esq., but no award was made.

Mr. A. DEAN showed three lots of Onions, each consisting of six bulbs; No. 1 sample weighed 56 oz.; No. 2, 30½ oz.; No. 3, 16 oz., variety Ailsa Craig. No. 1 sample, had been grown on ground dressed for two years with stable-dung at a cost of 2*s*. Samples No. 2 were selected from several plots, each of which was dressed with a different kind of artificial manure, at a cost for each plot of 2*s*. Sample No. 3 consisted of very small bulbs, selected from a plot that had had no manure for two years in succession.

W. DYER, Mitchett Nursery, Frimley, Surrey, showed Tomato Dyer's Seedling, a smooth, round, crimson fruit. The variety is apparently a very heavy cropper.

The Floral Committee at Chiswick.

SEPTEMBER 24.—A meeting of the Floral Committee was held at Chiswick on the above date, to examine Michaelmas Daisies (perennial Asters) growing in the gardens.

Present: W. Marshall, Esq. (in the Chair); and Messrs. Jas. Hudson, H. J. Jones, R. Dean, E. Molyneux, C. R. Fielder, J. Walker, G. Reuthe, C. Dixon, C. Jeffries, and W. J. James.

AWARDS OF MERIT were recommended to:—

Aster Novi-Belgii, Top Sawyer.—A vigorous variety, nearly 5 feet high, and delightfully free flowering. Its large, well shaped, lilac-coloured flowers are considered to be an improvement on Robert Parker, one of the best of the group for garden decoration. From Miss WILLMOTT, V.M.H., Warley, Essex; and Messrs. DOBBIE, Rothesay.

Aster Novi-Belgii, F. W. Burbidge, is of compact bushy habit and quite distinct from any other variety in the Chiswick collection. Its shapely flowers are large, of a pretty shade of rosy-lilac, and borne with great freedom. Height 4 feet 6 inches. From Miss WILLMOTT, and Messrs. DOBBIE.

Aster Novi Belgii, Celestial, is a chance seedling raised in the Society's gardens. It is vigorous, free in blossom, and bears large light blue flowers occasionally touched with rose.

Aster Novi-Belgii, Daisy Peters, may perhaps be best described as an improvement on Purity, and Mrs. W. Peters. It is a seedling from the last named, grows 3 feet high, and bears great quantities of large pure white flowers. From H. P. STURGIS, Esq., Givons Grove, Leatherhead (gr., Mr. W. Peters).

Aster Novi-Belgii, Dorothy, is a charming variety, of good growth, with a profusion of pale lavender flowers. A continuous bloomer, and a good border plant. From Miss WILLMOTT.

Aster lævigatus, also known as longifolius formosus, is wonderfully pretty, and quite distinct. It is of compact, sturdy habit, and one of the most floriferous of Michaelmas Daisies. Flowers rose, passing to pink; height 2 feet 6 inches. From Miss WILLMOTT.

Aster vimineus perfectus is a slender-growing variety of upright habit, and literally smothered with dainty white flowers, suffused and tipped with pink; height 3 feet 6 inches. From Mr. E. BECKETT, Aldenham House Gardens, Elstree.

Aster cordifolius magnificus has the good habit characteristic of the type, and produces an abundance of small, pale blue, or delicate lilac flowers; height 4 feet 6 inches. From Mr. E. BECKETT.

Phlox Sylphide.—This still maintains its position as the best all-round white Phlox. Individually the "pips" may not be quite so large and heavy as in some other varieties, for example, but when we consider that a succession of flowers is kept up for nearly three months, its value for decorative planting is of a very high order indeed. From Messrs. PAUL, Cheshunt; and Mr. JOHN FORBES, Hawick.

HIGHLY COMMENDED (***).

Aster Shortii.—This belongs to the small-flowered section, and is a very showy border plant. It varies in height from 3 to 4 feet, and bears a profusion of light blue flowers.

Crystal Palace Fruit Show of the Royal Horticultural Society.

In addition to the competitive exhibits shown at the Crystal Palace last week, and fully reported on in our last issue, honorary displays were made of fruit trees in pots, fruit in dishes, and as preserves. Honey and apiary utensils, hives and implements, and hardy flowers in great numbers. The following remarks are upon the exhibits of fruit.

A bank of fruit trees in pots was arranged by Messrs. G. BUNYARD & Co., Maidstone, at the rear of a long table, on which the firm displayed hardy fruit in plates, baskets, and trays. Many of the trees were heavily laden with fruit. Grapes were likewise shown, viz., Foster's Seedling, Gros Maroc, and Black Hamburgh, superior examples. Two varieties of the Fig not often seen in gardens, at the least upon open walls, as Black Douro, a large dark-skinned fruit, and Osborn's Prolific, were observed; also a smallish late Peach, named Late Devonian. Many of the varieties of Pear were of large size, but as a rule the Pears were not as yet in true character. The exhibit was a good one.

Messrs. J. CHEAL & SONS, Crawley, Sussex, showed Dahlias, arranged in sprays of Cactus, Pompon, and single-flowered varieties. The exhibit was supported by a row of Apple and Pear trees, lifted from the open ground, and also grown in pots.

Messrs. J. VEITCH & SONS, Royal Exotic Nurseries, Chelsea, showed a group of Pear-trees of choice varieties in pots, including Beurré Fouqueray, B. Superfin, Doyenné du Comice, Charles Ernest, Sterckmann's, Fondante de Panisel, and Emile d'Heyst.

Preserved fruits were exhibited by the BRITANNIA FRUIT PRESERVING COMPANY, Ltd, consisting of an interesting array of bottles and jars filled with jams of many kinds, and whole fruits in syrup. Plums of many varieties, large and small fruited; Red Currants, Cherries, Raspberries, and Pears in syrup.

Messrs. LEE & Co., 19, Knightrider Street, Maidstone, showed whole fruits in syrup, put up in metal-topped glass jars; also Rhubarb and Beans.

Messrs. AUSTIN & Co., St. James' Works, Kingston-on-Thames, showed home-grown and preserved fruit, mostly in wide-mouthed glass jars, of Gooseberries, Raspberries and Currants, mixed; Cherries, green Plums, red ditto, Currants, Raspberries, Rhubarb, &c., all being very appetising in appearance.

THE HORTICULTURAL COLLEGE, Swanley, had a similar exhibit, and the same sort of jars, of jams, fruit, jellies, whole fruits in syrup, Apple as marmalade and jam, and as slices; Greengage jelly, &c. This exhibit showed much variety of method. A large exhibit, also from the College, was made of gathered fruits, including Apples of a large size of the varieties Bismarck, Peasgood's Nonsuch, Ecklinville Seedling, and The Queen; excellent Catillac and Pitmaston Duchess Pears, and several dishes of Plums, and Melons in variety.

From the LADY WARWICK HOSTEL, Reading, came an extensive assortment of dried and candied fruit, put up in boxes as for sale, including Plums, Pears, and Apples, sliced and dried; Rhubarb, Cherries; besides a great variety of jams and bottled fruit. In most cases the ordinary parchment cover was used.

Messrs. HARRISON & SONS, nurserymen, Leicester, showed fruits of Capsicum, and the growing plants; also Egg-plant Cardinal, of a scarlet colour, spherical; Capsicum Cardinal, a large long red; and fruits of Rubus palmatus (Strawberry-Raspberry), and plants with fruits upon them.

A COMPETITIVE CLASS.

One dozen of bottled fruits. 1st, ALLANSON BAILEY, Esq., Mount Pleasant, Farningham (gr., Mr. Elliott); this included Pears and Apples cut in quarters, Plums, Cherries, and Gooseberries; 2nd, Mr. J. BUSHNELL, Sandlings, Maidstone; this exhibit included Quinces in thick slices; 3rd, Mrs. BANK, Hasland Hall, Chesterfield, including White Currants.

Class 142.—1st, Mrs. W. H. PLOWMAN, Heath Cottage, Beddington Corner, Mitcham, showed a small, very good exhibit in 1 lb. jars of jellies, jams, and whole fruits.

One Melon, and one dish of Apricots, came from The Lady KNIGHTLEY of Fawsley (gr., Mr. E. Cox). The former was a neat fruit of Royal Jubilee and the latter were of the Moor Park variety.

NATIONAL DAHLIA.

SEPTEMBER 23.—The Committee of the National Dahlia Society, sitting at the Drill Hall, on Tuesday last, awarded Certificates to the following varieties, some of which are described in the report of the Royal Horticultural Society's meeting :—

CERTIFICATES OF MERIT.

Dahlia (*Cactus*) *Manxman.*—Mr. S. MORTIMER.

Dahlia (*Cactus*) *Mrs. Seagrave.*—Bright crimson, flaked with purple; a bold and striking flower of fine form.

Dahlia (*Cactus*) *Mrs. W. Cuthbertson.*—True Cactus form; shaded crimson in the centre, with brighter crimson towards the extremities of the petals; a massive variety.

Dahlia (*Cactus*) *Charm.*—Novel and distinct; yellow ground, suffused with orange and tipped with white; a charming variety.

Dahlia (*Cactus*) *Minnie West.*

The foregoing four varieties were from Mr. J. T. WEST, Tower Hill, Brentwood.

Dahlia (*Cactus*) *Princess.*—Bright pale rose colour, suffused with bright purple; a novel and attractive variety.

Dahlia (*Cactus*) *Coronation.*—As a garden variety.

The two foregoing varieties were from Messrs. KEYNES & Co.

Dahlia (*Cactus*) *Albion.*

Dahlia (*Cactus*) *Decima.*—Yellow, suffused with orange-brown; a fine, full, well-formed variety.

Dahlia (*Cactus*) *Ella.*—Of a very pleasing salmon, shaded with orange; fine Cactus type; full, and decidedly pleasing.

The three foregoing varieties were from Messrs. J. BURRELL & Co., Cambridge.

Dahlia (*Cactus*), *H. F. Robertson.*—Pale yellow, a finely formed flower of excellent build and character.

Dahlia (*Cactus*), *Mabel Tulloch.*

Dahlia (*Cactus*), *F. H. Chapman.*

The three foregoing varieties were from Messrs. J. STREDWICK & SON, St. Leonards.

Dahlia (*Show*), *A. M. Burnie.*—From Mrs. ST. PIERRE HARRIS.

Dahlia (*Pompon*), *Mephisto.*—Dark crimson shaded; a small compact flower of perfect form.

Dahlia (*Pompon*), *Imogen.*—Delicate lilac-pink, tipped with purple; very pretty and pleasing, and of excellent shape.

The two foregoing varieties were from Mr. C. TURNER, Royal Nursery, Slough.

Dahlia (*Single*), *Serita.* From Messrs. J. CHEAL & SONS.

A meeting of the committee of this Society was held on Tuesday last in the Rooms of the Horticultural Club, Mr. E. MAWLEY presiding. The Treasurer, Mr. WILKINS, reported satisfactorily as to the financial results of the recent show at the Drill Hall, and the prizes due to the various competitors were ordered to be paid. With respect to next year's exhibition, it was agreed to hold it again at the Drill Hall on such date early in September next as the Royal Horticultural Society may fix, and also that it should be again of two days' duration. In relation to the awards of Certificates to seedling varieties, it was agreed on the second September meeting to invite the Council to agree to the appointment of a joint committee of equal numbers from the Dahlia Society and the Floral Committee, to alone discharge such duty. It was also resolved on the first day of the annual exhibition to hold a Dahlia-judging Conference, in preference to any paper or lecture, if the same be agreed to by the Council of the Royal Horticultural Society.

DERBYSHIRE AGRICULTURAL AND HORTICULTURAL.

SEPTEMBER 10, 11.—The forty-first annual exhibition of this Society was held at Derby on the dates given above, and under very adverse conditions of weather; a cold N.E. wind with a heavy downpour of rain continuing for the greater portion of each day, keeping many hundreds away, and making the grounds anything but pleasant to those who had the courage to brave the elements.

In the horticultural division the entries were more than 200 in excess of 1901, and in point of merit the productions staged were quite up to the high standard of former years. Six competitors entered in the group class of miscellaneous plants, the result being very pleasing. Mr. J. Ward, gr. to T. H. OAKES, Esq., The Riddings, Derby, who has taken 1st prize in this class for several succeeding years, was again well to the fore, his specimen Codiæums being remarkably well grown; among them were noted C. Readii, C. Warreni, C. tortile, C. Lucy, C. Nestor, and C. Thomsonii, most of the plants ranging between 5 and 6 feet in height, furnished with foliage down to the pot. Mr. J. Thompson, gr. to G. H. TURNER, Esq., Littleover, Derby; Mr. J. S. SHARP, nurseryman, Almondbury, York; and Mr. G. Woodgate, gr. to Sir OSWALD MOSLEY, Bart., Rolleston Hall, Burton-on-Trent, taking the other prizes in the order named.

FRUIT.

The tables of dessert fruit are always a feature at the Derby show, but only three competitors came forward this year, Mr. J. H. Goodacre, gr. to the Earl of HARRINGTON, Elvaston Castle, Derby; Mr. J. Read, gr. to the Earl of CARNARVON, Bretby Park, Burton-on-Trent; and Mr. J. WARD; these competitors being 1st, 2nd, and 3rd respectively. The fruit shown was of high quality, the winning collection being exceptionally fine, and consisting of Muscat of Alexandria and Madresfield Court Grapes, Countess Melons, Taunton Hero, Princess of Wales, and Royal George Peaches, Victoria Nectarines, Brown Turkey Figs, Golden Drop Plums, Washington Apples, and two varieties of Pears.

Mr. GOODACRE was placed 1st in the class for three bunches of White Grapes, also in the class for three bunches of Black Grapes, staging three magnificent bunches of Barbarossa; Mr. S. Barker, gr. to the Duke of NEWCASTLE, Clumber, running him close with three grand bunches of Gros Colman.

For a single dish of Peaches and for Nectarines, Mr. GOODACRE was again 1st. Several collections of Apples were in competition. In the class for six dishes, large and highly coloured fruits being shown, the 1st and 2nd prizes going respectively to Mr. GOODACRE and Mr. G. WOODGATE.

VEGETABLES

were exceedingly well shown; the chief prize winners being Messrs. J. HUDSON, D. SMITH, J. READ, G. WADESON, and G. WOODGATE.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

SEPTEMBER 11.—On this occasion H. THORP, Esq., Boothroyden, exhibited a somewhat unusual form of Cattleya Forbesii, the flower being greenish throughout in colour.

R. TUNSTILL, Esq., Burnley (gr., Mr. Balmforth), exhibited the pure yellow-flowered Odontoglossum grande, which had previously received honours.

O. O. WRIGLEY, Esq., Bury (gr., Mr. Rogers), staged a very nice group of plants, Lælio-Cattleya × Admiral Dewey being well shown. A Cultural Certificate was awarded to a finely-grown plant of Cœlogyne pandurata, an Award of Merit to the handsome Brassia Lawrenceana var. longissima, and a First-class Certificate for Cypripedium × Mabeliæ, var. Corona. This latter plant is the reverse cross of C. × Lord Derby, and is very striking in its petals, which remind one of the finest form of C. × Morganiæ var. Burfordensis. C. × Fowlerianum was shown from the same collection. Bronze Medal was awarded for the group.

Captain C. C. HURST, Burbage Lodge, Hinckley (gr., Mr. Dakin), received an Award of Merit for Cattleya × Germania (C. granulosa ×, C. × Hardyana), var. Burbagensis.

E. ROGERSON, Esq., Didsbury (gr., Mr. Lowe), received a First-class Certificate for Cattleya × Hardyana Oakdene var., a fine form with brilliant colouring in the lips. An Award of Merit was voted to the same owner for Cypripedium × T. Rogerson, a cross apparently between C. × orphanum × C. Charlesworthi.

Mr JOHN ROBSON, Altrincham, exhibited a form of Cypripedium × Laurebel, which received an Award of Merit.

T. STATTER, Esq., Whitefield (gr., Mr. Johnson), exhibited a beautiful plant of Cypripedium × triumphans, well known for its rich dorsal sepal. Lælio-Cattleya × Ingrami and Cypripedium Stonei × Rothschildianum, came from the same collection.

M. JULES HYE, Ghent, exhibited Brasso-Cattleya × heatonensis (Brassavola Digbyana × Cattleya × Hardyana), a fine large flower of a delicate shade, fringed in the labellum, as are all the crosses from Brassavola Digbyana (First-class Certificate).

Messrs. CHARLESWORTH & Co., Bradford, staged a handsome set of plants, including a handsome hybrid Sophro-Lælia × heatonensis (Sophronitis grandiflora × Lælia purpurata), the colour of which may be described as brilliant cerise, with a sheen which glistened in a good light. This plant received an Award of Merit; and similar awards were voted to Lælio-Cattleya × Adolphus (L. cinnabarina × C. Aclandiæ), and Lælio-Cattleya × Albanensis var. inversa (C. Warneri × L. tenebrosa (Bronze Medal for group).

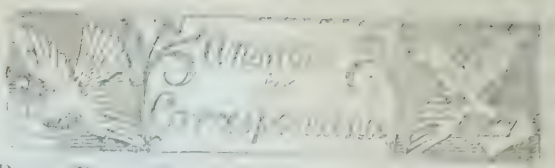
Mr. A. J. KEELING, Bingley, exhibited Lælia × Diana (L. purpurata × L. Dayana), and said to resemble L. × Iona.

Messrs. COWAN & Co., Gateacre, exhibited Oncidium × punctatum, a supposed natural hybrid between O. Forbesii and O. Gardnerianum. *P. W.*

CROYDON HORTICULTURAL MUTUAL IMPROVEMENT.

SEPTEMBER 16.—"Violas" formed the subject of an interesting paper by Mr. G. DRAY, Superintendent of the Recreation Grounds, Sydenham. Mr. M. E. Mills, gr. to FRANK LLOYD, Esq., staged some fine cut hardy flowers.

The next meeting will be held on October 7. Subject, "The Renovation of Old Fruit Trees."



BIRCH RUST: *Betula* is informed that the Birch leaves are infested on the under surface with the small yellow tufts of Uredospores belonging to the Birch-rust, formerly known as Uredo betulina, but now recognised as the Uredo stage of Melampsora betulina; the latter being found later as blackish dots mixed with the Uredo. This parasite is known on the leaves of the different species of Birch in most countries of Europe, as well as Asiatic Siberia. Sweep up and burn all fallen leaves if you would prevent diffusion. *M. C. C.*

BOOKS: *F. C. Harper. The Cottage Gardeners' Calendar*, published at this office, price 3½*d.* per post. It is of a size convenient for carrying in the pocket. A larger book by T. W. Sanders, entitled *The Garden Calendar*, was published by Hamilton Adams & Co., Paternoster Row, London, at 2*s.*

CARNATIONS: *J. L. L.* A beautiful lot of blooms so late in the season. The colour pleasing, and particularly effective in masses.

CATERPILLAR: *S.* The mottled Umber moth, Hibernia defoliaria.

CHRYSANTHEMUM CATALOGUE: *Chas. P.* For the official catalogue of the National Chrysanthemum Society, apply to the Secretary, Mr. R. Dean, Ranelagh Road, Ealing, London, W.

COAL-ASH TENNIS COURT: *E. M.* If the land is wet or retentive, there should be a 6-inch layer of chalk, brick-bats, clinkers, or similar material put into an excavation made 9 inches deep, and the soil at the bottom should be given a slope to both sides, and tile drains provided at the sides to carry off the water. On this mass of rough material place roughish coal-ashes—say the screenings from the house dust—taking care to use nothing that will decay; make this level and firm, and then put on fine coal-ashes an inch deep, apply water, and roll well.

COMMISSIONS AND AGENCY: *Correspondent.* We agree with you that the offer made to you is a very specious and a very insidious one, quite unworthy of a respectable firm. We do not see, however, how this very mischievous practice can be stopped, unless the nurserymen themselves combine to stop it, as the seed-merchants did many years ago, when, at their own instigation, the Seed Adulteration Act was passed, which has proved very beneficial. The great difficulty is that some of the Dutch houses, including some of those of the highest repute, make the same or similar offers, and there is no means of reaching them. We have before us leaflets inserted in some Dutch catalogues, which, to say the least, are not creditable.

CORRECTION: ANANAS BRACAMORENSIS. Mr. Linden has drawn my attention to the fact that the variety of Pineapple illustrated on p. 218 of the *Gardeners' Chronicle* of Sept. 20 is "Ananassa bracamorensis," and not Brackermorensis. Furthermore, that it was introduced by them from Rio Bracamoros. *James Roberts, Vienna.*

CUCUMBER FOLIAGE GOING BROWN IN PLACES: *G. H. A. B.* Frequently alluded to in recent issues of the *Gardeners' Chronicle*. Nothing is known with certainty about this "new" disease, except that it is caused by a fungus, and at present there is no remedy for it. It spreads rapidly, and the better course is to root out the plants and burn them, and then thoroughly disinfect the pit or house with sulphur.

CUCUMBERS: *E. G.* The many legged insects on the decayed roots of your Cucumbers are mere scavengers, and perfectly harmless. The plants have died from other causes, possibly the destructive fungoid disease, now so common.

CURRANT CANKER: *S.* The red fungus is a Tubercularia; see *Gard. Chron.*, Jan. 28, 1871.

FUNGUS ON YEW: *T. S.* The fungus is Sphærella taxi, described and figured in the *Gardeners' Chronicle*, June 28, 1884. Cut off the affected shoots as far as you can, and burn them.

GRAPES DISEASED: *G. Smith.* The fruits are affected with the spot fungus, Glæosporium ampelophagum. With a pair of Grape-scissors cut out every diseased berry, catching them in a small box, and destroying them by burning forthwith. Nothing further can be done this season, the Grapes being nearly ripe. In the winter, dress the Vine with the Bordeaux Mixture or some adherent dressing containing sulphur, and during the summer months syringe the Vines occasionally with water in which liver-of-sulphur at the rate of ½oz. per gallon is dissolved.

GRAPES NOT COLOURING: *H. S.* The cause is probably the too heavy crop this year and last. You can do nothing now more than you have already done. Another year crop the Vine more moderately. The manures used were of the right kind. Such manures should not be afforded more often than once in six weeks during growth. Vines do not bleed during the season of growth, and it will be quite safe for you to remove laterals, taking the precaution to cut them back to a leaf.

HIPPEASTRUMS (AMARYLLIS): *A. B.* See p. 208, col. c, in our issue for September 13 last, under the heading "Spring-flowering Hippeastrums." The directions there given will be quite applicable to your case.

MELON PLANTS DISEASED: *O. L.* See also under "Cucumbers." The plants are attacked by the fungus Cercospora melonis, for which there is no known antidote. Clear out plants and soil, and cultivate no cucurbitaceous plants for several years. That which is cleared out of the houses or pits should be buried deep in the earth or charred. The pest is causing much loss in gardens in this country.

MELON ROOTS: *J. H.* One of the worst cases of "Eelworm" we have seen. Eelworms are of microscopic size, not visible to the naked eye. Your soil must swarm with them, and it is useless to attempt the cultivation of Melons, Cucumbers, or allied plants, unless you sterilise your soil by baking it, or procure from a distance some that is known to be free from the pest.

NAMES OF FLOWERS AND FRUITS: *We are desirous to oblige our correspondents as far as we can, but the task is becoming too costly and too time-consuming for us to continue it without some restrictions. Correspondents should observe the rule that* **not more than six varieties** *be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. The fruits should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.*—*A. M. C.* 1, Melrose; 2, Hanwell Souring.—*R. B.* 1, a small example of Brown Beurré; 2, Beurré Romain.—*H. P. S.* It is impossible to give the names of such immature specimens in their present state. Let the others remain on the trees for at least a fortnight. We will refer to your samples as they ripen.—*W.V.C.* 1, Worcester Pearmain, dessert; 2, not recognisable; 3, unknown, not much better than a wilding; 4, Devonshire Quarrenden, dessert; 5, French Codlin, cooking; 6, Duchess of Oldenburg, cooking. Pears: 1, Fondante de la Roche; 2, Forme de Délices; are very small and not in character.—*R. W. R.* Beurré Duquesne.—*M. & Co.* Lord Lennox, a late dessert Apple.—*Bojohn.* Plums: 1, Monarch; 2, Victoria; 3, Kirke's; 4, Prince Englebert; 5, Belle de Louvain; 6, this one was crushed.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*A. Bennett.* 1, Rudbeckia maxima; 2, R. laciniata; 3, R. pinnata; 4, Heliopsis lævis; 5, Dracocephalum virginicum; 6, not recognised.—*J. L.* 1, Pernettya mucronata; 2, Chrysanthemum coronarium; 3, Inula ensifolia; 4, Lychnis dioica, double-flowered variety; 5, Eupatorium ageratioides.—*W. B.* 1, Sedum spectabile; 2, not recognised; 3, Inula glandulosa; 4, Erigeron speciosus; 5, Campanula urticifolia; 6, Helianthus multiflorus, double; 7, Campanula, not recognised.—*J. H.* Datura Stramonium (Thorn-Apple), poisonous; comes up as a weed in waste places; it belongs to the Solanaceæ.—*J. Batters.* Polygonum cuspidatum.—*W. D.* We cannot undertake to name the varieties of Chrysanthemum frutescens.—*J. Snell.* Not a Sweet Pea, but Lathyrus magellanicus—Lord Anson's Pea, introduced as long ago as 1744.—*W. M.* 1, Catalpa bignonioides; 2, Cestrum fasciculatum; 3, Asclepias nivea; 4, Libonia penhrosiensis; 5, Eupatorium Wemmannianum.—*Croton.* The Crotons are properly Codiæums; they vary much even in the leaves of the same plant. 1, Asplenium viviparum; 2, Aloe socotrina; 3, Codiæum chrysophyllum; 4, Codiæum interruptum; 5, Codiæum Weismannianum.—*R. M., Cheshire.* The plant sent is commonly known in gardens as Saxifraga longifolia.—*F. B.* 1, Scabiosa succisa; 2, Centaurea nigra, Hard-head; high cultivation and heavy manuring are the best remedies.—*G. S.* 1, Polygonum sachalinense; 2, Lavandula dentata.—*W. H.* A Verbena, which we do not recognise.—*G. M.* The beautiful Oncidium you send is Oncidium luridum guttatum; the species is extremely variable, some of the forms having very dull-coloured flowers. Your variety, the Jamaica form, is the best.—*S.* Lycium sinense.—*A. K. K.* 1, Arctostaphylos uva ursi; 2, Antennaria tomentosa; 3, Aster acris; 4, Saxifraga crassifolia; 5, Ophiopogon Jaburan; 6, Achillea Millefolium var. rosea; 7, Potentilla variabilis; 8, Anthericum Liliago. Do not send more than six at another time.—*Bojohn.* Ceanothus azureus grandiflorus, a native of Mexico.—*W. W., Taymouth.* Coriaria ruscifolia. The beautiful Thalictrum Delavayi was figured from Kew in the *Gardeners' Chronicle*, August 2, 1890. When you have a seedling to spare we should be glad to have it.—*E. H., Colchester.* Glaucium luteum, horned Poppy.—*J. K., Alresford.* 1, Salvia Horminum; 2, Saponaria officinalis, double; 3, Eupatorium cannabinum; 4, Spiræa species; 5, Rhamnus alaternus.—*J. H. H.* 1, 2, 3, Fruits later on; 4, Polygonum cuspidatum; 5, Asplenium ruta muraria; 6, Daphne Laureola; 7, Tilia europæa; 8, Cratægus glandulosa.—*J. C., Lochgilphead.* 1, Lysimachia; 2, Hypericum perforatum; 3, Sanguisorba canadensis; 4, Chelone obliqua; 5, Sedum telephium var.; 6, Heuchera, no flowers; 7, Lupinus polyphyllus; 8, Geranium silvaticum; 9, Achillea Millefolium var. rosea; 10, Epimedium, no flowers; 11, Leycesteria formosa; 12, Hemerocallis kwanso, double. Please remember we have other work to do than to name plants; another time send only six, our time is very precious.—*B. B.* Verbenas, but the varieties undeterminable when out of flower. They may be struck from cuttings at this season, or grown from seeds sown in the early spring.—*A. B.* Cratægus Lelandi. We do not undertake to reply by post. We will endeavour to give you a reply next week.

NEW GROUND INFESTED WITH WIRE-WORM: *J. F. M.* To clear land of wire-worm is not an easy matter, but seeing that it is under grass, this should be skimmed off in sods of 2 to 3 inches in thickness, stacking it for future use, or charring it. If the stacks of turf are made of large size, and no herbage be allowed to grow on the top and sides, the wire-worms will die from lack of food as the roots of the grasses decay. The turf being removed, dress the land with gas-lime or quicklime and soot, and trench or plough it with a subsoil plough, and stir it with an ordinary plough or cultivator twice during the winter.

PEACH: *H. S. G.* Royal George is the better variety of the two named, but is liable to mildew attack in the early summer months.

SCALE ON CARICA PAPAYA: *M. Buysman.* Lecanium hesperidum is the name of the scale. Why not try the hydrocyanic-gas treatment, which is claimed by experts to be the most efficient fumigating medium for "scale?" The method recommended for succulent or tender plants is as follows:—Place a number of plants in an air-tight Wardian case or chamber containing 16 cubic feet of space; place a non-porous or glazed earthen vessel inside, and pour into it 1 oz. of clean soft water; add to this ½ oz. of sulphuric acid (H_2SO_4), then add ½ oz. of cyanide of potassium (KCN), broken into small lumps about three-quarters of an inch square; close the door of the case or fumigator, and leave for half an hour. The cyanide is a deadly poison, and should be handled with every care. Before adopting this method, we would strongly advise you to consult the *Journal of the Royal Horticultural Society*, vol. xxiii., pp. 37—40; and also *Fumigation Methods*, by Johnson (Orange Judd Co., New York, 1902). As an insecticide, satisfactory results have been obtained with the well-known paraffin emulsion, see *Journal of the Royal Horticultural Society*, which also gives much useful information on remedies for scale insects. *G. N.*

UNHEATED GLASSHOUSES: *J. Bonhomme.* Nothing can be done with such houses in the winter, beyond making them stores for fruit-trees, Vines in pots, at rest, plants of Rhododendrons, hardy Azaleas, Lilacs, Staphylea, and the like, that will be forced for spring flowering.

VINE STEM INJURED: *No Name or Initials.* The roots are healthy and abundant, but the stem of the Vine, just at the ground-level, seems to have been gnawed by mole crickets, mice, or rats, or injured by a tool, and the plant has made an effort to cover the exposed wood with bark. We observe no signs of disease.

VINES: *T. F.* There are no indications of fungoid or other pests, and the disfiguration of the leaves is due to scalding. That other varieties have not suffered similarly may be because the leaves are stronger, and better able to resist evil influences. Examine the glass for "flaws," and exercise care in affording sufficient air to prevent "scorching" or "scalding." Good results may follow the inarching of the Muscat Hamburgh upon Black Hamburgh.—*F. J.* There appear to be signs of a fungoid disease in the leaves, but they are not sufficiently developed to be identified with certainty. Will you send us more advanced specimens in the course of a week or ten days?

WEEVILS IN CYCLAMEN-POTS: *H. F.* The grubs must be sought for by turning out the plants carefully without disturbing the balls, excepting on the top where, doubtless, most of them will be found. All soil suspected of harboring weevils should be baked before making use of it. The perfect insects should be caught at night.

COMMUNICATIONS RECEIVED.—E. N., with many thanks.—E. T., Grahamstown.—F. W. B.—L. B., New York.—Max Leichtlin, Baden-Baden.—F. de L., Contich.—C. Sprenger, Naples.—F. M. G.—Barr & Sons.—Thos. Methven & Son—Max Kolb, Munich—B. & S.—A. Cogniaux, Nivelles—H. C. W., Bavaria—J. T.—F. M. G.—E. G. R.—J. Ball—E. W., Elgin—J. H., Queenstown—W. H.—A. C. F.—C. O.—E. C.—F. T. L.—F. S.—T. E. S.—J. H. H.—J. P.—Interested Reader.—C. J.—A. B.—R. B.—H. P. S.—M. & Co.—S. N. R.—J. E. B.—A. D.—G. Nicholson.—H. W. W.—A. H.—C. T. D.—G. F.—J. S. & Co.—W. J. S.—W. H. C.—T. H.—A. R. B.—Bucks.—H. S.—Geo E. L.—Tokay.—F. J.—Z. P.—N. G.—W. E. B.—J. R. P. & Sons.

(*For Markets and Weather, see p. x.*)

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CUCUMBER AND MELON-LEAF BLOTCH.

Cercospora melonis, *Cke.*

In view of the amount of destruction that is being wrought to Melon and Cucumber plants, in market nurseries, by this fungus, the following article from the *Journal of the Board of Agriculture* will be read with much interest. The pest was described first in the *Gardeners' Chronicle*, by Dr. M. C. Cooke, on September 5, 1896, p. 271.

"This fungus, although first observed and described as a new species so recently as 1896, has spread with remarkable rapidity, and at the present moment is the most destructive parasite with which the cultivator of Cucumbers and Melons has to contend. In several instances growers report an annual loss of £1000, whereas others have had to abandon the cultivation of these plants, owing to the repeated destruction of their entire stock, in places where the fungus has secured a firm foothold.

The foliage is the part attacked. The first indication of the presence of the disease is the appearance of a few small, scattered, pale green spots on the upper surface of the leaf. The spots gradually increase in size and also in number, and often run together, gradually passing through grey to a brownish or ochreous colour. If at this stage the upper surface of a diseased spot be examined with a pocket-lens, it will be seen to be covered with delicate upright brown threads, each bearing a conidium at its tip. This represents the fruiting portion of the fungus, the mycelium or hyphæ being buried in the substance of the leaf.

The minute conidia or reproductive bodies are carried from diseased to healthy leaves by currents of air, insects, clothing, &c., or by spraying; and if the leaf-surface is moist, such conidia germinate, and the germ-tubes enter the tissues of the leaf directly.

Very frequently a leaf becomes quite dry and crumbles to the ground within twenty-four hours of the first infection. Such dead fallen leaves are much more responsible for the rapid spread of the epidemic than are the conidia, which pass directly from one leaf to another.

When the dry fragments of a diseased leaf fall on damp earth, the mycelium present in the tissues quickly commences growth, and forms an exceedingly delicate cobweb-like mycelium, which runs on the surface of the soil, and produces myriads of very minute conidia, which are dispersed by currents of air, and infect the leaves in a manner similar to that of the larger conidia borne on the leaves.

The mycelium in the soil, originating from diseased fallen leaves, continues to extend and produce conidia so long as the requisite conditions as to moisture and temperature are present. When these conditions fail, the mycelium passes into a resting condition, but readily assumes renewed activity when stimulated by returning moisture and heat. By this means the fungus survives from one season to another in the soil, and the disease is almost certain to recur year after year in a house that is once infected, unless the soil is thoroughly sterilised.

It is important to remember that the disease under consideration can only assume the proportions of a destructive epidemic when attacking plants grown under glass, and where a high temperature and an excess of moisture are present. Such conditions, accompanied by a deficiency of light, result in the production of 'soft' foliage, and it is only such soft foliage that the fungus can attack. Experiments carried out at Kew prove that the fungus cannot inoculate leaves that have developed under 'lights,' or in the open air. Plants that are badly diseased, if removed to the open air, produce new foliage, which remains perfectly healthy.

The disease is entirely an artificial creation, rendered possible by the rushing mode of cultivation followed.

The seed remains perfectly free from disease, hence there is no fear of its introduction from this source; and its sudden appearance in a new locality remained inexplicable until indicated by the following incident:—An establishment in Hertfordshire, sending consignments of Cucumbers to Covent Garden Market, remained free from the disease until the commencement of the present season, when on one occasion some empty 'flats,' or packing-boxes, that had contained Cucumbers, sent from a place where the disease was known to be rampant, were by mistake returned from Covent Garden to the Herts establishment, where from that date the disease appeared, and is now practically beyond control.

To test the possibility of this means of introducing the disease, an empty box that had contained diseased Cucumber-leaves, sent to Kew for determination, was placed over a young Vegetable-Marrow plant that was growing under glass; within three days every leaf was destroyed by the disease. Another Marrow plant, growing in the open, and subjected to similar treatment, did not contract the disease.

Preventive Measures.

If the foliage is fairly hard, the disease cannot assume the dimensions of an epidemic; and even if it appears, it can be kept well in hand by spraying. To accomplish this end, a fair supply of air should be admitted, so that the atmosphere is not constantly saturated with moisture. It is wise to spray in anticipation of the disease, using a solution of potassium sulphide—2 ounces to 3 gallons of water, adding 2 ounces of soft soap.

It is very important that the under-surface of the leaves be thoroughly wetted with the solution.

If the disease is present, the soil should also be drenched with the solution.

Diseased leaves should be removed and burned before they decay and fall to the ground.

After a diseased crop has been removed, the soil should be thoroughly drenched with a solution of Jeyes' Fluid, in the proportion of an ounce to a gallon of rain-water.

As to the danger of infection arising from spores being conveyed in packing-cases, as recorded above, no suggestions can be offered; nevertheless, the matter is one claiming the attention of cultivators, and as the wholesale mixing up of such hampers appears to be the rule rather than the exception, it is probable that many diseases other than the one under consideration have by this means been first introduced to a new locality."

THE ART OF TABLE DECORATION.

(*Concluded from p.* 172.)

To complete our decorations it only remains for me to say a word on the tracery laid on the table-cloth. This is an art in which it is scarcely possible to lay down any rules, for it allows of endless variety of treatment in accordance with the material at the disposal and the artistic talent of the decorator. The materials which may be used in tracery are almost innumerable, and may be selected from exotics grown under glass, from the foliage of hardy trees and shrubs, especially in the autumn, when the leaf tints are brilliant and pleasing.

When Orchids are chiefly used on the dinner-table, Asparagus, Myrsiphyllum, Smilax in variety, Adiantums, and the foliage of some of the more graceful Bamboos may be employed. One mode of laying the tracery on the cloth is to form star-like figures at the base of each of the central line of ornaments, laying on each ray of the star a small spray of choice flowers, and then to arrange a double line of tracery all round the table, one line on each side of the dessert dishes, forming a boundary, as it were, to these dishes, and the low sprays of flowers between them. Care should be taken that the outer tracery does not encroach upon the space reserved for the dinner-plates, otherwise discomfort and annoyance will be caused the guests. On these lines of tracery there may be placed, at distances of a foot apart, sprays of Orchids, Dendrobiums for preference, these flowers harmonising with the other flowers mentioned. We have still the centre space of the table

between the ornaments left for tracery, and with this the artist must proceed to deal in a telling manner, according to the amount of space at his command. I would suggest that the tracery should take the form of gently curved lines, starting at one end of the table, meandering in and out between the bases of the table ornaments down to the bottom of the table. On this tracery, as on the others, small sprays of flowers may be sparingly disposed.

I fear that some decorators and gardeners, unaccustomed to this interesting and delightful kind of work, may feel disposed to say that it must be very tiresome and intricate, and cost much time in the carrying out. Let me assure such persons that it is not so. If the matter has received due consideration, and the general features be previously sketched out, the material ready and qualified assistants provided, two hours is ample time for the carrying out of the most elaborate decorations. I would only add that a man should be told off to collect the flowers and place them in water as soon as the guests have left the dining-room, as many of them may be available for future service in one room or other for several days. *Owen Thomas.*

FIG. 81.—IRIS LEICHTLINI.

NEW OR NOTEWORTHY PLANTS.

HEMEROCALLIS CITRINA, *Baroni, in N. Giornale Bot. Ital., t. ix.*

THIS very fine, perhaps the finest of all the species of Hemerocallis, was sent to Europe first by the late Padre Giraldi to Florence, from whence I received it. It is a highly elegant perennial plant, and grows very easily in any soil. It bears in March long, narrow, and elegant light green leaves, and in June numerous stems covered with large flowers, which open in the evening, and are very fragrant. The flowers are of a rich lemon-yellow, whilst the buds are nearly black. It differs much from all the forms of Hemerocallis of my garden, but does not easily produce fruits or ripen seeds. I grow it in the open ground and full sun, but it prefers the shade, where it would produce seeds more frequently. It was found near some stream in the north of China, in Lun-tan; it loses its foliage early in autumn, and is perhaps the hardiest of all our species and varieties. *Ch. Sprenger, Naples.*

IRIS LEICHTLINI.

THIS Iris (fig. 81), first described by Regel (Descript. ix.), belongs to a group of Irises for which I have suggested the name Regelia. The rhizome of an Iris of this group is very similar to that of an Oncocyclus Iris, the foliage has much the same characters, and in its habit and behaviour the plant very much resembles an Oncocyclus Iris. The chief difference between the two groups is, that while in an Oncocyclus Iris the scape bears a single flower only (in some of the Palestine Oncocyclus Irises I have found the rudiment, but only the rudiment of a second flower), in a Regelia Iris the scape usually bears two, and may bear three flowers. A less constant difference is, that in a Regelia the beard of the fall is a linear beard, as in the ordinary bearded Iris, whereas in an Oncocyclus the beard is frequently, but by no means always, spread out laterally into a cushion. To call the Oncocyclus Irises "Cushion Irises" is misleading, because in some, I. Barnamæ, for example, the beard is linear, not a cushion, though in every other respect the Oncocyclus characters are well maintained. In a Regelia Iris, moreover, the segments are pointed and narrow, whereas in a typical Oncocyclus the segments are almost circular; but this character, though it has give the name to the group, and is conspicuous in I. iberica, &c., is perhaps the least constant feature. Further, in a Regelia Iris, almost without fail, there is a narrow but well-formed beard on the outer petal or standard.

The seed of a Regelia Iris, with its conspicuous anthers, is exactly like that of an Oncocyclus Iris. I can often distinguish (by minor features) the rhizome of a Regelia Iris, but never the seed. The best known forms of the group are I. Leichtlini and I. Korolkowi, though there are several others; and indeed the group through I. Bloudovii and I. arenaria merges into the I. pumila group. The great charm of I. Leichtlini lies in its peculiar colour. Veins of bronzy-brown on a fine purple, blue-purple ground, give it a very striking appearance.

There are some varieties of the species. One differs from the type in colour, the bronzy tints being less conspicuous. Another form differs in colour, in size of the flower, and especially in the stoloniferous character of the rhizome. This latter I described as a separate species under the name I. vaga; and although bowing to the opinion of my friend Mr. Baker, I am willing to consider it as I. Leichtlini var. vaga; from a gardening point of view it is a distinct species.

I have crossed I. Leichtlini with I. nudicaulis, but the result maintained little of the fine colour of the mother; in fact, the father was predominant. Though a real hybrid, the product was an abundant seed bearer, and I have carried it on through three generations; but there has been no break back towards the mother—it has become more and more an ordinary so-called pogonisis Iris.

It only remains for me to say, that the Irises of the Regelia group have to be treated like those of the Oncocyclus group (whatever may be the particular treatment favoured), but are more robust than are the Irises of that group, and will bear ordinary care or ordinary neglect for a longer time without succumbing, though that event will happen sooner or later. *M. Foster.*

MAXILLARIA SCURRILIS.

Our illustrations (figs. 82, 83) represent a plant and a single flower, of natural size, of this extraordinary species, one of the many fine discoveries of Mr. F. C. Lehmann in South America, and which was awarded a First-class Certificate by the Royal Horticultural Society on July 17, 1900, when shown by its owner, Sir Trevor Lawrence, Bart., Burford. Maxillarias are special favourites at Burford, and they, like the other Orchids, are cultivated with remarkable success. It is well for the subject of our illustration that such is the case, for the only specimen which came over alive was in a critical state. At present it is in robust health, and has on several occasions bloomed profusely. The flower is white in the area around the column, with purple spots, the long continuations of the segments being yellow with purple-brown markings. The lip is also marked with rose-purple.

ORCHID NOTES AND GLEANINGS.

BOLLEO-CHONDRORHYNCHA × FRŒBELIANA, *Cogniaux*.

On July 31, Herr Otto Frœbel, of Zurich, sent me a flower of an exceedingly curious Orchid that had bloomed in one of his houses, and had been received by him in 1898 from New Grenada, where it was growing with Bollea cœlestis and Chondrorhyncha Chestertoni. Mr. O'Brien described it in the *Gardeners' Chronicle* for August 30, p. 150. The following are the principal characteristics of this variety:—Peduncle slender, erect, uniform, 10 cm. (4 inches) long, bearing at the top two membranous bracts half the length of the ovary; the exterior erect, oval, obtuse, sheathed at the base; the interior spreading, linear, triangular, acuminate. Flower 8 cm. (3¼ inches) wide; sepals and petals almost membranous, lanceolate-ligulate, yellowish-white, lightly tinged with rose, especially at the summit; the sepals pointed, the dorsal one slightly concave, erect at the base, curving outwards at the summit; lateral sepals more spreading, the outer edge much incurved, almost doubled in; the petals obtuse, almost flat, slightly undulated, erect, curved back at the tip. The lip somewhat thick and fleshy, but three times as delicate as that of Bollea cœlestis, rather shorter than the lateral sepals, the tooth short and somewhat wide; the blade widely obovate, rounded, somewhat concave, with a projection on the outer surface below the top, erect, much curled at the tip, the curved part membranous; crest of the disc very wide, with from thirteen to fifteen ribs, which reach from the base towards the centre where they become more prominent. All this crest is orange-yellow; it is bounded with a yellowish border, with a wide edge of dark brownish-purple; column 23 mm. long by 1 cm. wide.

One of the parents of this Orchid is certainly Bollea cœlestis. The form of its lip at first reminded me more of that of certain Warscewiczellas, and I thought some species of this might be the other parent, but M. Frœbel reminded me that the second parent must have provided the yellow colour in the flower, and this is rarely found in Warscewiczella, but is present in Chondrorhyncha Chestertoni, with which this plant was found growing. I therefore class it as a hybrid between the Bollea and the Chondrorhyncha. At the same time it is surprising to find no trace of the fringes that border the lip of Chondrorhyncha Chestertoni. *A. Cogniaux, Nivelles.*

Cypripediums at Westfield, Woking.

A selection of the best kinds only is admitted by Francis Wellesley, Esq., into his neat collection of Orchids at Westfield (gr., Mr. Gilbert). Cypripediums are the prime favourites, and of these both hybrids and species are well represented. At present in bloom are a fine variety of Cypripedium Stonei, and just expanding a strong plant of C. Stonei hackbridgense, of which much is expected; also C. × Goweri magnificum, C. × Vexillarium superbum, C. × Chas. Canham, C. × Bryan, C. × enfieldense, C. × rubens Ranjitsinghi, C. × Creon, C. × H. Ballantine, a good batch of C. Charlesworthi, and other Cypripediums. Crosses of C. Rothschildianum are special favourites, and the two recently in bloom, C. × Mrs. Arthur Wells (selligerum majus × Rothschildianum) and the certificated plant of C. × A. de Lairessii, are very large and distinct hybrids. The plants of C. niveum, C. bellatulum, and C. concolor and their hybrids are grown together suspended near the glass of the roof, a position which suits their dwarf stature better than the stage. C. × Mrs. Wm. Mostyn, which received a First-class Certificate some time ago, and was illustrated in the *Gardeners' Chronicle*, Feb. 1, 1902, p. 75, is a great beauty, and thriving in a manner not always shown by high-bred varieties.

The Cattleyas and Lælias have some showy kinds in flower, such as C. × Hardyana "Mrs. F. Wellesley," and C. × H. "Westfield var.," two very finely-coloured flowers; C. Eldorado crocata, a fine, fragrant, blush-white flower, with an orange centre; a few good C. aurea, C. Gaskelliana, and other Cattleyas; a grand Lælio-Cattleya × Schilleriana named Westfield variety; L. × Iona, Lælio-Cattleya × Parysatis, and other hybrids. At the end of the intermediate-house is suspended a large specimen of Barkeria Skinneri, with about thirty spikes of rose-purple flowers, making a fine display. *J. O'B.*

[*Photograph by J. Gregory*

Fig. 82. MAXILLARIA SCURRILIS.
(THE ONLY PLANT AT PRESENT IN ENGLAND.)

"THE THEORY OF MUTATION."*

THIS review is practically an abstract, and a very interesting one, of a volume published in Leipzig by Vert & Co. in 1901, consisting of 644 pages and numerous illustrations, and entitled *Die Mutationstheorie Versuche und Beobachtungen über die Entstehung der Arten im Pflanzenreiche* (*The Theory of Mutation: Experiments and Observations regarding the Evolution of Plant Species*). There is also published by the same firm *Die Mutationen und die Mutationsperioden bei der Entstehung der Arten* (*Mutation and its Periodicity in the Evolution of Species*), by the same author. The first named work is the fruit of fifteen years' cultural experiments on an extensive scale. The result agrees in the main with the observations of Korschinsky as regards the participation of *per saltum* variation, i.e., very considerable sudden changes of form in the development of species. De Vries' work, however, goes far beyond Korschinsky's, since it is not only based upon personal observation and experiment, and a deep study of practical cultivation in field and garden, but also treats the matter on a far wider basis. It embraces not merely the evolution of species in a wild state, but also the various garden varieties and cultural strains obtained by selection. It is quite impossible to condense his observations within the compass of an article; the main points only can be referred to.

Those who are deeply interested must resort to the book itself, which is very clearly written. Those who desire a sketch only are referred to the second publication named, which reproduces an address, dealing however mainly with the second section of the book.

In the first section, "The Basis of the present Theory of Selection," the decided difference between individual fluctuating variations, which are not transmissible by seed, and the sudden "sports," i.e. the mutations are clearly defined, and it is shown how Darwin in his *Theory of Selection* did not draw a line of demarcation between these, but used sometimes one and sometimes the other, though mainly adhering to the first; while Wallace dealt also with the minor variations. With these, however, selection never leads to the appearance of new specific characters, the progress made in a few generations by selection, though relatively quick, can only be maintained by a continuance of the process, and if selection be discontinued, the effects disappear as rapidly as they arose. Species, however, arise through "sports," i.e., mutations; it is true these are not species in the Linnean sense, but the elementary species. The "petites espèces" of Jordan, the cultivated plants, are also such elementary species in so far as they are not strains or races improved by selection. The mutations are many-sided (*allseitig*), and result periodically; in the interims the species are immutable but variable. Into behaviour in the open under wild conditions, where the sport must compete with the old type, the author does not enter deeply, contenting himself with reference to Gulick and Delbœuf.

The second section contains the results of the beautiful experimental investigation of species-evolution in the genus Œnothera (pp. 151 to 356). After vain attempts with species of other genera, Œ. Lamarckiana, and two new nearly related types found at the same time, Œ. lævifolia and Œ. brevistylis, were brought under culture from a spot where they had run wild. Œ. Lamarckiana yielded no more like the two others, but on the other hand, Œ. Lamarckiana and Œ. lævifolia yielded a whole series of elementary species, both yields closely alike, and jointly about 1·5 per cent.; Œ. brevistylis being almost barren, could not be used for similar trials. The new species were distinguished from their nearest approaches more or less by all characters; they are more easily discriminated from Œ. Lamarckiana than this form of Œ. biennis. Some were only reared with difficulty, and others would not fully develop at all. A large number were at once entirely constant, such as Œ. gigas, rubrinervis, oblonga, albida, leptocarpa, &c. Others were not, and could not even be fixed by selection. Œ. scintillans, and others, were infertile either through imperfection of the male organs, as in Œ. lata, or perfect as Œ. fatua. These were the beginnings of species. As a rule, all the "sports," with the sole exception of Œ. rubrinervis, were more or less infertile as compared with Œ Lamarckiana. The boundary lines between the new elementary species were as usual sometimes very indistinct, owing to transgressive subvariations of specific characters. Besides these specific sports, Œ. Lamarckiana is also capable of producing abnormalities, such as tricotyly, fasciation, &c. The negative results experienced by De Vries in his trials with many other species is therefore attributed to these being in a condition of immutability, which leads up to the theory of sport periodicity. Œ. Lamarckiana is regarded as being now at its sportive period.

The third section treats of "Nutrition and Selection" (pp. 368 to 410). The individual type of variation is, according to the author, determined by outer influences, and the younger the plants the more effective are these (critical periods). The nutrition of the seed afforded by the mother-plant has frequently a greater influence than that given during germination and vegetative life. If nutrition and selection work in like lines, the result is more due to the former than to the latter, the amplitude of the variation remains about the same; if they work in opposite directions, the one increasing, the other diminishing, the nutrition may have the greater effect (length of seed capsules in Œnothera, and branched corymbs of Anethum, &c.), or the less (branched corymbs of Coriandrum, &c.), or the two may maintain an equilibrium (marginal rays of flowers of Chrysanthemum segetum, &c.), and the varietal scope is extended. The reason of this varied behaviour is attributed by the author rather to the relative extent of the influences than to the nature of the trial plants. Since selection is conducted according to the qualities of the parents and grandparents, and these are themselves determined by external influences, the whole of the fluctuating type of variation is determined by these, and especially by the nutrition, while the conditions determining mutation or sports are utterly unknown.

The fourth section is devoted to "The Origin of Garden Varieties" (pp. 412 to 644). In addition to the new garden varieties originating as "sports," which vary little, and are at once constant by seed, there are novelties of the very variable fluctuating type, whose variability is determined by the conflict of two characters, one of which, the normal old one, instead of becoming latent, appears more or less in conjunction with the other, the abnormal new one. If the new character be as potent as the old, De Vries speaks of a middle race; if it be weaker, semi-latent, so that the older character predominates, he speaks of a semi-race (*halbrasse*), which, treated statistically, shows half curves. Both are intermediate races. (Note by Reviewer—There is an inconvenience here that the word "race" (*rasse*) is used sometimes for strains produced by selective culture, and sometimes in the sense here adopted). They appear feebly characterised (*minusvarianten*), and are improved by selection. Darwin relied upon such cases when he treated of the development of a variety in one direction by selection. It is, however, also here a question of a sporting (mutation), which cultural selection increases in extent. Good nutrition is here particularly effective. In this way semi-races may become middle races (*mittelrassen*). There are constant intermediate races, and inconstant varieties, for instance, those with coloured leaves, in which every year more or fewer individuals overstep the boundaries (atavism). Among established varieties, trials were made with Trifolium pratense quinquefolium, the striped Antirrhinum majus, Hesperis matronalis, Plantago lanceolata ramosa, and Linaria vulgaris.

Peloria, &c.—While the development of Chrysanthemum segetum plenum from the form grandiflorum and the peloric Linaria vulgaris (90 per cent. constant) from the constant form of hemi-peloria with semi-latent capacity for peloric formation, was also investigated, Trifolium incarnatum quinquefolium could not be obtained, nor a "plena" form from Ranunculus bulbosus, nor an annual variety from annuals which were previously biennials, &c. Mutation periods proper cannot be assumed for the formation of intermediate races.

The difference between garden varieties and the elementary species produced by the trials is, according to the author, that in the first, the already existent characters are developed, while in the latter new ones originate. With the former, it is a question either of latency of existing qualities, or the activity of previously latent ones; with the latter, there must be a prior development of a "premutation" period, in which the new qualities in question must have originated latently under the influence of external conditions. The new elementary species is of equal birth with the old species; the new variety is derived from it.

(To be continued.)

* By H. de Vries. Reviewed by C. Correns, *Bot. Zeit.*, No. 1, January, 1902, pp. 3—9.

WATER-LILIES, ETC., AT HAMPTON COURT.

THE large basin in the centre of the broad walk flanked by the magnificent Yew-trees which were planted about the year 1690, has been a great attraction to visitors of all classes at Hampton Court this year, by reason of the very fine display of the new coloured Water-Lilies there to be seen blooming in a very satisfactory manner. All the best and showiest varieties are represented, their white, yellow, pink, and crimson flowers, and finely-tinted foliage giving a feature never before seen in these fine old gardens. The plants have attained extraordinary size—indeed, it seems to be impossible to get larger specimens, and as they have been but a few months in developing, Mr. Gardner, the Superintendent of Hampton Court Gardens, may claim to have obtained unusual results with them, and his method of proceeding should be recorded.

On the last Temple Show day (May 28) this year he obtained from Messrs. Jas. Veitch & Sons, of Chelsea, a selection of the best varieties. These were at once placed in large tubs, the material used for them to grow in consisting of two-thirds two-year-old cow-dung and one-third turfy loam. This seems a rather rich mixture, but the result proves the suitability of it, and that, too, while numbers of these showy Water-Lilies are reported to be doing unsatisfactorily either in all loam, or loam and a small proportion of manure. Mr. Gardner is of opinion that the very large shift from the pots into large tubs, and the rich material used, is the main cause of his success, and he advises that all Water-Lilies in tubs should have new material of this kind afforded them some time in May each year.

As a result of the past trying season for out-door gardening, the Superintendent of Hampton Court gardens, supplies some notes of interest. His experience of the season is that, although the gardens have been maintained in their usual beauty, it has entailed much more care and work than usual. Some of the elaborately filled beds of flowering plants have had a complete refilling five times since the spring, and the greater part

three times. This induces him to make a comparison between the flower-beds and the beds of foliage plants, which have been filled but once; with perhaps a readjustment after stormy weather once or twice during the season. He concludes that the beds of coloured and ornamental foliage plants have been the most satisfactory this year, and are the most likely to give the best effect, with the least labour in most seasons.

Pelargoniums and some other flowering bedding plants have not been so good as usual this year, but Fuchsias, Hollyhocks, Phloxes, Violas, Verbena venosa, Roses, except for a time in the mid-season, and some other things, have grown and flowered in the greatest profusion. The showiest plants at present in the gardens are the varieties of Montbretias, which are grown in great quantities, the massive reddish-orange flowers being visible from one end of the gardens to the other. Galtonia candicans has revelled in the wet weather, some bulbs producing three spikes 4 feet in height. Many of the trees and shrubs seem to be re-invigorated, and the large stretches of lawn have probably never in our time looked so soft and verdant at this season. *J. O'B.*

THE "CORK" BEGONIAS AT SHREWSBURY.

Among the many good and highly attractive exhibits staged as cut flowers at the recent Shropshire Horticultural Society's show, the extensive collection of double-flowered Begonias staged by Messrs. R. Hartland & Son, the Lough Nurseries, Cork, who have made a specialty of Begonias, was awarded a large Gold Medal. The blooms in point of size, form, and colour were all that could be desired in double-flowered Begonias, and they were wonderfully fresh, considering how far they had travelled by sea and land, the colours varying from pure white to deep crimson.

The following are the names of some of the more prominent varieties:—Ami Peeters, with flowers extraordinarily full, and of a beautiful clear rose tint with white centre; Clio, with fine, yellow, beautifully fringed flowers; Countess of Craven, having very large and erect flowers, pure white; Dr. Nansen, of good habit, flowers large and well formed, of the brightest crimson colour; Duchess of York, of fine habit, flowers carried erect, of a pleasing tint of orange; Lord Kitchener, showing a perfect Camellia-like flower of a rich crimson colour; Lord Llangattock, of good habit, large, nicely-shaped flowers of a clear reddish-crimson; M. Isidore Becheret, with immense flowers, with crimped petals, clear rose colour, edged with peach; M. Johannis Sallier, a strong grower, with large Camellia-shaped flowers of an orange-salmon tint, with pure white centre; M. Suby, of good habit, with very large, full, bright pink flowers, having a centre of pale pink; M. Wannot, having large, round flowers of a flesh-shaded salmon colour; Mme d'Or, of erect habit, with enormous handsome flowers of a bright golden-yellow tint, with an edging of pink; Miss Travers, of good habit, with flowers very large, full, and beautifully rounded, and of a deep yellow tint; Mont Blanc, of good habit, flowers erect, very large and beautifully shaped, clear white; Orion, also of erect habit, with immense round flowers, petals very large, of the brightest orange-scarlet; Paul Verlaine, a strong, free grower, with enormous flowers, with large, crested petals of the purest white; Princess of Wales, plant vigorous and floriferous, flowers erect, and of immense size, and of a beautiful blush-pink colour; Reynolds Sharpe, a large, Camellia-shaped variety, with crimped, crimson

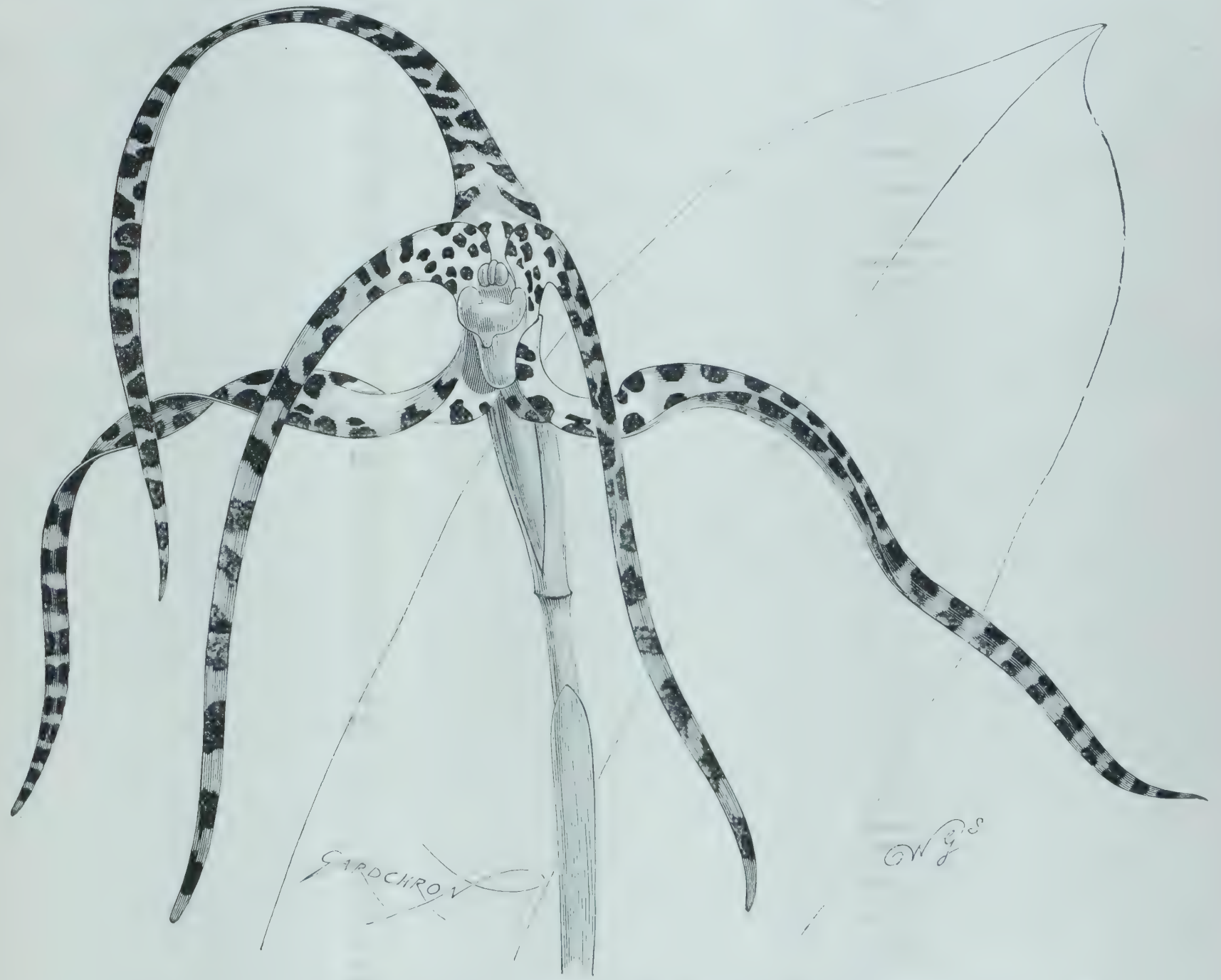

Fig. 83.—Single flower of Maxillaria scurrilis, from Sir Trevor Lawrence's collection. (see p. 243.)

scarlet flowers. Of this year's novelties suffice to mention three out of the forty-seven sent out by the Messrs. R. Hartland & Son, namely, Captain Henderson, perfectly erect, of a scarlet tint, very large; Etonnement, large, imbricated, pale rose-coloured flowers; Mrs. R. Lawford, very large, rich scarlet.

A row of spikes of Gladiolus, consisting of large, finely developed, and richly marked flowers of Osmanli, Van Dul, Mrs. Palmer, Soleil couchant, and Enchantress, made a very fitting background to this exhibit.

In conclusion, we may say that the less forcing Begonias are subjected to the better they flower, and the longer they remain in good condition. Acting on this knowledge, Messrs. Hartland start and cultivate their Begonias in a cool house, placing them near the roof-glass in order to ensure short-jointed, floriferous growth. The plants being well established in 5-inch pots by the end of May or early in June, are then shifted into 7-inch pots, and again into 9 or 10-inch pots about three weeks later for exhibition purposes, using a compost consisting of equal parts good sandy loam, leaf-mould, and manure (free from worms), using clean, well drained pots in potting. Messrs. Hartland consider that the secret of success is in the careful application of water, looking over them morning and evening, and only applying water to those requiring it.

During the summer Messrs. Hartland use the lightest of shading, afford abundance of air in favourable weather, and avoid draughts. Liquid-manure much diluted is applied occasionally when a plant is in full flower, sheep's or cow-dung being that mostly employed. *H. W. W.*

The Week's Work.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Zonal Pelargoniums.—Zonals which have been grown in full sunshine with a view of obtaining a good display of flowers during the winter, will have made wood of considerable substance, and the plants should now be housed and the flower-trusses allowed to develop. They should stand thinly on stages or on beds covered with coal-ashes, and near to the roof, air being admitted whenever possible. This sort of treatment keeps the shoots short jointed and firm. A very moderate use of the heating apparatus may be allowed on cold nights and muggy days, in order to dispel damp and give buoyancy to the air in the house. The flowers produced under such treatment will be of fine colour and good substance.

Cannas.—For winter display, Cannas having strong crowns which have been resting for a while, may now be started in a light and moist intermediate-house. The plants must be afforded plenty of manure-water whilst making growth.

Gardenias. — Provide brisk and regular bottom-heat, otherwise the foliage will become yellow and sickly-looking, and growth stubborn. Very little pinching of the points of the shoots should be done during the winter, unless flower-buds appear at a time when they are not wanted.

Ixoras.—From now onwards Ixoras should be afforded less water until January. Cuttings may be taken with a heel off older wood, placed in pots containing sandy soil, and covered with bell-glasses; and a number of plants should be thus propagated yearly.

Coleus thyrsoides.—This plant should be afforded a brisk heat and good light in order to develop its flowers during the winter. It is a useful plant for its colour effects when arranged in a large mass by itself, or with other plants whose flowers blend with it, otherwise it is apt to create inharmonious effects in mixed collections of plants.

Eranthemum pulchellum.—Well rooted plants should now be afforded manure-water; and if the plants are grown in the intermediate-house, flowers will be produced for a long period of time.

Climbers.—These plants should be denuded of all superfluous growth, so that sunlight may reach the plants beneath. It is too soon to make the annual pruning, but Plumbago capensis and Heliotropes may have their shoots shortened-in; and Tacsonias, Passifloras, and Jasmines may have much of the smaller spray entirely removed. Lapagerias will take plenty of water whilst in flower.

General Work.—The application of water to plants in the greenhouse should now be made in the early morning hours, and afternoon syringing dispensed with. Asparagus Sprengeri growing in baskets should be rendered vigorous and healthy with manure-water often applied.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Budleigh, Devonshire.

Apples.—Although the present year may be considered a backward one, there are many varieties which are fit for gathering at what is about their usual time, viz., Kerry Pippin, Margil, Peasgood's Nonsuch, Warner's King, Ecklinville Seedling, Potts' Seedling, Wealthy, Cox's Pomona, Golden Spire, Cellini, Ribston Pippin, Cox's Orange and Blenheim Orange Pippins, besides others. Much care must be used in gathering fruit, the keeping of it depending upon the care bestowed upon it. The baskets should be lined with soft material, with paper put over it, and no fruit that has been pecked by birds should be put into the fruit-room. This is a rule that must be very strictly observed when fruit is stored in boxes and barrels, in which late varieties keep plump till quite late in the spring. Late-keeping fruits should remain on the trees as long as it is safe, especially on espaliers, pyramids, and bushes, from which it is not so liable to be blown down as upon standards. Unless the weather appears settled, the fruit on standards should be gathered within the next week or ten days. The fruit-room must be well aired till the fruit has ceased to sweat, and afterwards kept close and dark.

Peach and Nectarine-trees.—Remove forthwith all unnecessary shoots as soon as the trees are cleared of fruits, so as to allow the sun-light to ripen the wood. At Bicton, much fruit has been spoilt owing to excessive rain, and the great numbers of wasps and flies about. Fruits of late varieties, such as Princess of Wales, Gladstone, Devonian, Golden Eagle, and Nectarine-Peaches, should be well exposed, or they will not ripen or be of good flavour. Sea Eagle is a very large Peach, has a good constitution, and crops freely, but in flavour it is a long way behind those varieties enumerated above. In northern parts of the country it may be necessary to protect these late fruits with hexagon-netting or mats at night, if there is any risk from frost.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Succulents. — The more tender species of Echeveria, Sempervivum, Kleinias, &c., used for edgings to flower and carpet-beds are very susceptible of frost; and where it is desirable to secure these and other tender plants for some time longer, it will be necessary to have some light material handy to place over them at night, the plants being difficult to winter if they are in the least degree injured by frost. Tricolor Pelargoniums and other ornamental-leaved varieties are also difficult to winter if injured ever so little by frost. At this date suitable quarters should be got ready for these plants, and preparations made for potting or boxing them the moment a change to frosty weather occurs. Owing to their slowness of growth, it is not advisable to head them back, but simply to remove some of the more crowded shoots, and strip off a few of their leaves, and leave the former at full length. By so doing a plentiful supply of cuttings will be obtainable in the spring. As to the green-leaved varieties, a little frost will not much affect them, and they may be left till others that are more tender are placed under cover, with a view to propagating in the spring.

Miscellaneous Plants.—Selected plants of Lobelia, Alyssum, Ageratum, &c., should be taken up immediately in numbers sufficient for propagating purposes, putting them in pots or thinly in cutting boxes. The compost used should be pressed firmly about the roots, and water afforded, afterwards placing them in a sunny position and slightly shading them from bright sunshine. In the event of frost, put them into a cold frame, and it is important that they be kept close to the glass, well exposed, and the lights removed entirely from the frames on all favourable occasions.

Rose-stocks.— Most of the buds inserted during the summer having taken, the ligatures should be removed, or at the least loosened and replaced with others, and the Briar shoots considerably reduced in length.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

The earliest Peach-house.—It is now time to put this division in proper order for commencing the forcing of trees in November. First see to the whitewashing of the walls, and syringing the whole of the interior with soap-suds in which petroleum is mixed; repairing of broken glass, and painting of the woodwork, and of the hot water-pipes if this be necessary. For the latter, make use of lamp-black and boiled linseed oil only. As regards the trees, they should be loosened from the walls and trellises, and the shoots pruned, cutting back every shoot to a wood-bud, and leave them rather thinly than otherwise. Scrub the strong, rough bark with soft-soap and water, and then dress the trees with XL All insecticide. If the roots and the soil of which the border consists are in a good condition, and the former abundant, carefully remove a little of the surface-soil, spread a moderate quantity of bone-meal and a suitable fertiliser on the soil over the roots, and finish with a 2-inch layer of turfy loam chopped fine, and over all lay a slight mulch of short stable-litter. Unless the trees have been previously forced early, it is futile to force the Peach so early in the winter as November; but a start may be made with established trees not previously started before the end of the month of February or beginning of March, and begin the forcing of such trees a fortnight or three weeks earlier each succeeding year, for unless the Peach is accustomed to very early forcing, forcing should not commence till the time named. It is of much importance to force only the most suitable varieties, and the following list will generally afford complete satisfaction: — Peaches: Amsden June, Hale's Early, and Stirling Castle; and besides these, Alexander and Waterloo may be planted, but the fruits are not so good as those of the first three. Of Nectarines, which are generally better croppers than Peaches, and are becoming great favourites, the best for early fruiting are Précoce de Cronsels, Cardinal, and Lord Napier. Young Peach-trees which have been planted for a year or longer in the houses, and are making too much wood, should be lifted when the leaves fall freely on being touched, but before they drop naturally. Carefully preserve all the roots, and replant the trees in the same place where they have grown, making the soil at the bottom of the holes quite firm

before replanting. A Peach-border should be well furnished with pipe drains, and not be deeper than 2½ feet. Plant almost on the level, cutting back before so doing any very strong roots. Cover the roots with finely-chopped, fresh turfy-loam, and thus promote the growth of roots, and smaller and more fruitful shoots. Peach and Nectarine-trees should be planted as maidens, and grown on west and south walls in the kitchen-garden, as a reserve supply for the Peach-houses.

THE ORCHID HOUSES.

By W. P. Bound, Gardener to J. Colman, Esq., Gatton Park, Reigate.

Trichopilias. — The flower-spikes now in course of development should be drawn to the side of the plant where they are the most readily seen, otherwise the pseudo-bulbs and leaves partially hide the blossoms. As a protection against slugs, which commit great havoc among these plants, place the plants on squares of perforated zinc, sufficiently large to allow of an inch at least clear when the pot is placed thereon, taking care that the foliage of adjacent plants does not afford means of access to the plants which it is desired to protect. The flowering season being over, greatly reduce the quantity of water afforded at the root in the case of T. fragrans and others, but not so much as to cause shrivelling of the pseudo-bulbs.

Scuticaria Hadweni.—This singular-looking epiphytal Orchid has now begun to grow and form new roots, and the plant should be put into good order. Its wants are best met under cultivation when affixed to a double raft, keeping the two three-quarters of an inch apart by means of small blocks fixed at the corners, and filling the intervening space with a mixture of equal parts of the fibre of peat and sphagnum, insinuating the roots carefully, and securing the plant with pieces of copper wire. During the season of growth afford water freely, and let the plants hang in a light position in the warmest part of the Cattleya-house.

Odontoglossum Madrense.—This pretty and somewhat rare species now coming into flower, should be afforded a place in the warmer part of the cool-house, the plant being better suited in the cool than in the intermediate-house.

Oncidium tigrinum. — Scarcely another variety succeeds so well in the cool-house than the subject of this note, and some of the plants will now be pushing up their flower-spikes, and others about to start into growth, a good season for repotting them; otherwise, wait till the flowering is past and repot immediately afterwards. The proper kind of compost consists of the fibre of peat and chopped sphagnum 2-5ths each, and leaf-soil 1-5th, all being mixed together intimately. A liberal amount of chopped Fern rhizomes should be given as drainage material, and the pots not larger than the plants actually require. It will be advisable to remove some of the aged pseudo-bulbs that rob the lead of its vitality, and retain not more than two behind the leading pseudo-bulb, and by so proceeding, a pot much smaller than might otherwise be used will accommodate a plant easily. Water should be applied with much moderation after repotting until the roots have seized upon the new compost, but from that time onwards, and till the new pseudo-bulbs develop, water may be freely afforded. Weakly plants should not be allowed to develop any flower-spikes, and a flower-spike should not remain for any length of time, even on strong plants.

Applying water, and Damping-down.—Great caution must be exercised in affording water, more especially when Fern rhizomes are employed as drainage, and peat, sphagnum and decaying tree-leaves as potting materials, success depending upon the care with which water is applied. With but few exceptions, Orchids should be allowed at this season to become dry, and when water is applied the potting-materials should merely be rendered moist—not saturated, and all work of this kind finished before mid-day. Plants growing or making roots are benefited when damped at the sides of the pots and the between-spaces several times daily. When in the early morning the temperature has increased in a house by a few degrees, is a good time for the first damping, and the last must be settled by the gardener from day to day, the point to be observed being that the house must not be very humid towards evening unless the outside conditions are very favourable. Again some houses require more damping than others, in order to obtain an equal amount of humidity. The two main points to keep in view are, that when the temperature is high, humidity is a necessity; and when the temperature is low, the dryer the houses the better.

THE KITCHEN GARDEN.

By T. Turton, Gr. to J. K. D. Wingfield Digby, Esq., Sherborne Castle, Dorsetshire.

Brussels Sprouts. — In dry weather clear decaying leaves from the plants, which by remaining on the stems cause the sprouts to acquire a disagreeable flavour. The removal of these leaves will admit light and air, and conduce to the production of sprouts, as well as add to the tidiness of the garden.

French Beans.—Where no suitable forcing-pits or small houses exist, the cultivation of French Beans should not be attempted till the new year; but where such conveniences are at command, sowings may now be made in 8-inch pots, and at fortnightly intervals, unless the demand is small, when less frequent sowings may suffice. For these early sowings the pots should be well drained, which is fully effected by placing five or six good sized crocks at the bottom, and over these a layer of spent Mushroom-bed materials. Sufficient compost should be mixed as will suffice for sowings for four months, keeping it where it will not get frozen. This compost may consist of old Melon-bed soil three parts, and one part dung taken from that prepared for making up Mushroom-beds, with a sprinkling of charred garden refuse. Sow nine or ten beans in a pot, and thin the plants to five or six of the stronger ones. Leave ample space for affording additional soil. Whilst the days are mild, place the seed-pots in a spent hot-bed frame or pit, standing them thickly together, and cover the frame at night with mats. Place twigs to the earlier sowings which were made on old Cucumber and Melon-beds, affording air by day and night whilst the weather is mild, and syringing them twice a day in order to prevent red spider attacking them. The latest sowings on warm borders should be protected at night with branches of evergreens, or bast mats supported on a framework of bean-sticks. Runner Beans should likewise be protected with the stems of the Jerusalem Artichoke laid against the rows, and more particularly on the north or east sides. Let all useable pods be gathered, and if possible when they are quite dry, and place them in a cellar for future use. Beans when gathered in a dry state do not rot, as is the case when they are put into a celler in a wet state.

Cauliflowers.—Plants from the August sowings should be pricked out into their winter quarters before they become drawn, and the timely check thus given the plants will keep them stocky, and consequently the better able to withstand a moderate degree of frost unprotected. A suitable place for Cauliflower plants is a south border which is higher than the general level of the garden, and over the bed a skeleton frame should be constructed, 18 inches high at the back, and 11 inches at the front. Protection of this kind is to be preferred to hand-lights, which, however, are convenient if only a limited number of plants is grown. The border should be dug, and the soil made firm by trampling it regularly and evenly all over, affording a light dressing of charred refuse, which should be mixed intimately with the soil in the process of levelling. The plants should stand 6 ins. apart. No protection will be needed till sharp frosts occur. If a spot on a south border cannot be found, place a garden-frame on hard ground in a sheltered spot, and fill in with a compost of equal parts leaf-mould and spent Mushroom-bed dung to the depth of about an inch, then another layer 4 inches deep of loamy soil; set out the plants, and treat them as in the case of those under the skeleton frame.

Lettuce and Endive.—Endive may be blanched by inverting clean garden-pots over them where they are growing. Plants when of a size fit for blanching are readily injured by frost, and should always be protected in some manner after this date. Tie up Brown Cos Lettuce when the plants are dry, and protect them from frost in the same manner as Endive.

Tomatos.—Gather all ripe and partially ripe fruits, and place them in a vinery, the Vines in which are still carrying their leaves, or in a warm room. Tomato-plants growing against walls and protected with frame-lights are ripening off a good crop of fruit in these gardens.

THE APIARY.

By Expert.

Feeding Driven Bees.—Bees should be fed in the morning or evening, but not in the middle of the day, particularly if the sun is hot, as the bees will commence to rob, and if not immediately checked will set the apiary in an uproar; should this happen partially close the entrance of the hive, allowing only space enough for one bee to enter at a time. Place a carbolic cloth in front of the entrance, and a piece of glass directly in front of the hive. You will thus give the bees a better chance of protecting themselves against the robbers. Carbolic powder sprinkled over the mouth or entrance to the hive will be found very advantageous in hot weather, as heat soon causes the carbolic cloth to become dry. After the cloth has been dispensed with, place it in an air-tight tin, and this will then retain its smell. Of the several methods of feeding bees in the autumn, that of purchasing a "Rapid Feeder" from your dealer is a very good one, because you can feed your bees without disturbing them, and it can be done very quickly. This is most important, as all food should be sealed over by the bees as quickly as possible to prevent fermentation. Another method is to employ the "bottle feeder," which costs 1s. 6d.; or, by taking an ordinary jam bottle and filling it with syrup, and then tying over it two thicknesses of butter-cloth, and turning it upside down on the top of the frames. Or again, by using a treacle-tin and punching holes the reverse side of the lid, and using it in the same way as the bottles. In the last two ways the hives must be perfectly level, or the syrup will run out and upset the bees, and cause similar trouble to that mentioned above. Great care should be taken in feeding bees that no syrup is spilt about. The best article for filling the feeders is a water-can, with a lid to it. Care should also be taken when making the syrup, according to the receipt given in last week's issue, that it is not boiled too long, or it will become candied. As soon as the bees have filled eight frames with stores, you may at once discontinue feeding, as this will be quite sufficient for them to winter on. A cake or two of candy can be placed on the top, or a few badly-filled sections if you have them. It is a good plan to use a dummy-board in winter, both in the back and front, to help to maintain the warmth of the hive.

TRADE NOTICE.

Many of our readers will be interested in the announcement made by Mr. H. Richardson, for twenty-three years manager to Mr. H. G. Smyth, horticultural sundriesman, Clark's Mews, High Street, Bloomsbury, W.C., that he has started a garden sundries business, combined with the sale of soils, manures, &c., on his own account, at 29, Arlington Road, Camden Town, London, N.W.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the **PUBLISHER.**

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR OCTOBER.

SUNDAY,	Oct. 5	Cham. Synd. des Hort. Belges, Ghent, Meet.
TUESDAY,	Oct. 7	Royal Horticultural Society's Committees Meet. National Chrysanthemum Society Exhibition (3 days). Scottish Horticultural Association Meet.
MONDAY,	Oct. 20	National Chrysanthemum Society, Floral Committee Meet.
TUESDAY,	Oct. 21	Royal Horticultural Society's Committees Meet.
MONDAY,	Oct. 27	National Chrysanthemum Society, Floral Committee Meet.
TUESDAY,	Oct. 28	Croydon Chrysanthemum Society Show (2 days).
WEDNESDAY,	Oct. 29	Fruit and Chrysanthemum Show in Jersey. Kent County Chrysanthemum and Horticultural Society Show (2 days). Highgate Chrysanthemum Society Show in Alexandra Palace (3 days).

SALES FOR THE WEEK.

MONDAY to FRIDAY, Oct. 6 to 10—
Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 11 o'clock.

MONDAY, October 6—
Bulbs, Spiræas, Azaleas, and Lilacs, at Stevens' Rooms.—Well grown Nursery Stock at Sunningdale Nurseries, Sunningdale, Berks, by Protheroe & Morris, at 12 o'clock.

TUESDAY, October 7—
Nursery Stock at the Kingston Hill Nursery, Main London Road, Kingston Hill, by order of Mr. J. Puttock, by Protheroe & Morris, at 12 o'clock.

WEDNESDAY, October 8—
Bulbs, Spiræas, Azaleas, and Lilacs, at Stevens' Rooms.—Azaleas, Rhododendrons, Narcissus, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 5 o'clock.

WEDNESDAY and THURSDAY, Oct. 8 and 9—
300,000 Fruit Trees at Sipson (West Drayton station), Middlesex, by order of Messrs. J. Smith and Son, by Protheroe & Morris, at 11 o'clock each day.

FRIDAY, October 10—
Orchids, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —52·6°.

ACTUAL TEMPERATURES:—

LONDON.—*October* 1 (6 P.M.): Max. 57°; Min. 48°.
October 2.—Weather dull and gloomy; Wind E.

PROVINCES.—*October* 1 (6 P.M.): Max. 57°, Cape Clear; Min. 52°, Peterhead, N.B.

Agricultural Chemistry.

THE second edition of the comprehensive work of Professor DEHERAIN on the subject of agricultural chemistry* has lately been published, and brings up-to-date most of the more important investigations connected with the study of plants, and the cultivation of the soil. In his introduction, the author states that the plant is an "instrument of reduction," because within its cells are separated the element oxygen from carbonic acid (dioxide), which is a compound of carbon and the element oxygen; and from nitric acid, which is a chemical compound of nitrogen and oxygen. The plant further takes these separated gases and unites them with the elements of water, whereby in a series of rapid stages they become converted into such substances as sugar, starch, cellulose, oil, and albuminoids. Plants are the only organic things that make use of the forces of the sun to build up from these elementary substances products alike suitable for human and animal food. The chief object of the author in his voluminous work is to show how the double work of reduction and of reconstruction, or building up, is carried on; also how we may obtain by the help of plants, a suitable climate, and a properly cultivated soil, such a quantity of vegetable products that its sale shall be remunerative.

One of the greatest of the practical problems presented for solution by agricultural chemistry is the conservation of plant food. With an abundance of plant food, and a favouring climate, it is difficult to place a limit to the power of the earth for supporting life. Should the cultivator succeed in raising the amount of food supply beyond that which his land would naturally yield, he is serving at once his own interests and those of the public generally, because both agricultural and horticultural prosperity are better secured by the increase of produce than by rise of prices.

The author commences his work with a description of the development of plants, including the germination of seeds, and the production and assimilation of plant food. The portion on growth and maturation has been considerably enlarged in the present volume. Next follows a full description of the importance of water; its circulation in the plant; the enormous evaporation excited by the sun's rays, which the plant can only maintain by constantly drawing upon the resources of the soil; should these fail, the plant languishes and dies.

The second part of the treatise treats of the study of arable land, which is described as a reservoir from which the roots of plants have to obtain their supply of water. It is only a properly cultivated soil that can fulfil its chief function of being a store-house of moisture. Water flows away over soil hardened by drought; it does not easily penetrate into a sun-baked surface; and because, under such conditions, it remains in the top layers of soil, it soon evaporates and is lost. On the other hand, water penetrates into a well-worked soil, is held in suspension, and remains there until wanted. It descends into the lower layers where the more deeply penetrating plant-roots feed. The plant-food of the soil only has access to the absorbent organs of the plant when presented in a proper soluble or semi-soluble form in connection with water.

The study of soil ferments has been largely extended in this edition; the author shows how the organic matter of soils becomes oxidised, how ammonia is formed, and how nitrates are reduced.

The third and fourth portions of the work deal with the subject of manuring. Considerable stress is laid upon the importance of a suitable supply within the soil of soluble available mineral plant-food, such as potash, lime, and phosphoric acid. The question of green manuring, that is, ploughing-in growing plants, and the cultivation of autumn catch-crops, is recommended, because they retain the nitrates formed in the soil during the summer months. Green manuring further promotes the production of vegetable organic matter (humus) within the soil, and prevents the nitrates from being washed away by winter rains.

Nitrogen in the form of nitrates is generally regarded as the best kind of nitrogenous food for plants. Plants obtain their nitric acid by absorbing the nitrates that are already present in the soil, those that are carried down to the soil from the air in rain and snow, those that are applied artificially in fertilisers, and those that are formed in the soil from the nitrogen of other substances. As is explained, all the nitrogen that is applied to the soil for fertilising purposes, especially in farmyard manure and in green-manuring, is not in the form of nitrates. It must first undergo certain chemical changes before it becomes available to plants. These changes take place through the agency of micro-organisms or ferments; and that particular process in which the nitrogen of the ammonia-gas is changed into nitric acid, which is called nitrification. One of the most active periods of the production of nitrates in the soil is during the early spring months, when the rootlets of growing plants greedily lay hold of it as it is formed.

It is not only by hindering the loss of nitrogen that catch crops are useful, but they also increase the amount of humus in the soil. The function performed by humus was long misunderstood, but it is now known to be the soil's storehouse of nitrogen, and although not directly available to crops, it is rendered so by nitrification. Farmyard manure introduces into the soil these nitrifying organisms in large quantities, a quality not possessed by chemical fertilisers; a point of great importance, but which is sometimes overlooked.

The author goes on to show that the largest crops are to be obtained by a proper combination of farmyard manure and artificial fertilisers.

The end of the 19th century was marked by several great discoveries in agricultural chemistry. In 1876 Messrs. SCHLOESING and MUNTZ showed that the formation of nitrates in the soil is the work of special ferments. In 1885 M. BERTHELOT proved that the fixing of nitrogen in the soil takes place by means of micro-organisms; and in 1886 Messrs. HELLRIEGEL and WILFARTH proved that Leguminous plants only make use of the free nitrogen of the atmosphere when they form on their roots nodules containing bacteria or microbes.

In order to promote nitrification, warmth, moisture, and air must be present in suitable quantities and proportions. One of the objects of ploughing and digging should be to bring about the best conditions for nitrification, for if they are faulty this action may be feeble, or entirely arrested.

Nitrification is promoted either by long or short fallows (bare soil), conducted during the warmer months of the year, but if a superabundance of rain falls upon the land before growing crops have made use of the nitrogen rendered available by tillage, serious loss may accrue by drainage. This fact leads to the conclusion that fallow lands, and those which have received frequent tillage while producing a summer inter-tilled crop, should be fully occupied by plants before the autumn or winter rains occur.

Moderate rains may serve to carry the available nitrogen downward, but it tends to rise to or near the surface as soon as capillary action is restored. But if water drains through or passes over the surface of the land rich in soluble nitrogenous compounds, great loss of plant-food may take place. Nitrification is checked by the drying effect of growing crops; this can be obviated by the application of a dressing of nitrate of soda.

* *Traité de Chimie Agricole*, 2nd edition, 1902, P. P. Deherain.

Group of Cineraria stellata: grown by Messrs. Webb.

The author concludes his work by stating that much of the land of France is irrigated for market-garden purposes. This practice is specially suited to lands broken up into small holdings. By persevering toil the gardeners of these districts are enabled to produce their early vegetables, cut flowers, and fruits, which are distributed all over Europe.

In these irrigated soils, enriched by copious manurings, micro-organisms and ferments multiply exceedingly, and push production to its maximum, because water is the first condition of fertility.

We can confidently recommend this valuable treatise to our readers, who will be fully repaid by a careful study of its contents.

Our Supplementary Illustration this week shows a group of Cinerarias, of the type known as "stellata," which has become so popular in gardens during the last few years. The plants possess a graceful, branching habit of growth, which is lacking in the strain favoured by the florists, and if the blooms are smaller, they are also very much more numerous. It is the absence of the stiff appearance common to the florists' strain, coupled with the free-flowering habit shown in our illustration that makes the stellata type more suitable for use in decoration, and these characteristics are those of the natural species; and the florist's varieties once possessed them also, but the exercise of "selection" by generations of raisers has modified the habit of the plants, just as it has increased the size of the flowers and the variety of colours. The plants shown in our illustration were cultivated by the well-known firm of Messrs. Ed. Webb & Sons, Wordsley, Stourbridge.

Royal Horticultural Society. — The next meeting of Fruit and Floral Committees of the Royal Horticultural Society, will take place on Tuesday, October 7, in the Drill Hall, Buckingham Gate, Westminster, from 1 to 5 p.m. A lecture on "Experiments with Chemical and other Manures" will be given by Mr. F. W. E. Shrivell, at 3 o'clock.—At a general meeting of the Royal Horticultural Society, held on Tuesday, September 23, thirty-six new fellows were elected, making a total of 934 elected since the beginning of the present year.

—— Examination in Horticulture, 1903.—The Royal Horticultural Society will hold its annual examination in the principles and practice of horticulture on Wednesday, April 22, 1903. The examination will be held simultaneously in as many different centres in Great Britain and Ireland as circumstances may demand; a centre can be established wherever a magistrate, clergyman, schoolmaster, or other responsible person accustomed to examinations will consent to act on the Society's behalf in accordance with the rules laid down for its conduct. No limit as to age, position, or previous training of the candidates will be imposed. The new syllabus is now ready, and intending candidates should send a penny stamp for a copy of it. Copies of the examination questions set by the Society's examiners in previous years, price 1s. complete, can also be obtained on application to the Secretary, Royal Horticultural Society, 117, Victoria Street, London, S.W.

National Rose Society.—A meeting of the general purposes committee will be held at the rooms of the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, on Tuesday, October 7, at 2 p.m., for the consideration of the programme for 1903, alterations in bye-laws and regulations, and the new edition of the catalogue, and other business. At 3 p.m. the matters to be discussed by the committee are the report on the Temple Show, suggestions for the alteration of bye-laws and regulations, and other matters. *Edward Mawley, Hon. Secretary.*

Chrysanthemum and other Shows.—Among the prize schedules received recently are the following:—*The Cardiff and District Chrysanthemum Society*, which will hold its exhibition on November 5 and 6; Secretary, Mr. Harry Gillett, Woodville Road, Cardiff. *The Ancient Society of York Florists*, whose exhibition will take place at York on April 12, 13, and 14; Secretary, G. F. W. Oman, 38, Petergate; and *The Ascot, Sunninghill, Sunningdale and District Horticultural Society*, for the show which will be held on November 5 and 6; Secretaries, Ed. Blair and H. R. Attfield.

Harvest Thanksgiving at Shirley.—On Sunday next, October 5, the Rev. Prof. George Henslow, M.A., V.M.H., is to preach at 11 a.m. at Shirley Church, near Croydon, and the offertories throughout the day will be given to the Gardeners' Royal Benevolent Institution.

British Mycological Society. — The members of the British Mycological Society spent last week in Herefordshire, where they held meetings and made excursions in search of fungi. The President, Prof. James W. H. Trail, sent an address, which was read, in the course of which he said that the development of botanical teaching had been rapid within recent years in the north of Scotland. A demand had arisen for the inclusion in school education of the study of plant-life. To make such teaching effective, the teachers themselves must be trained with special reference to the use of nature knowledge in the education of children. The Education Department of Scotland now required all intending teachers to attend either the full courses of botany and zoology in the universities, or special classes in these sciences planned for their peculiar needs as future teachers. For teaching the children the vascular plants afforded a far larger variety of material than the cryptogams, and must be more largely used; and to the vascular plants the chief, if not exclusive, attention would be directed in personal investigation for a time. The information most useful for a teacher could be best acquired by a careful study of the plants of a few miles' radius around the school, in which every habitat could be explored, the natural groups or associations noted, and the influences of environment, and the relations of the plants to man observed.

The Sandalwood Tree.—Mr. Barber, Government Botanist, Madras, has made the interesting discovery that the roots of this tree are parasitic in character, and puts forwards a plea for a closer study of the natural history of the tree. "It appears to me," he writes, "sufficient attention has not been given in past attempts at artificial reproduction, and a careful study of the liking of the Sandalwood for its different hosts is sure to be productive of useful results."

Freemasonry at Pontypool. — At the annual meeting of the Kennard Lodge of Freemasons held at Pontypool on Tuesday, September 30, Mr. John Lockyer, head gardener to J. C. Hanbury, Esq., of Pontypool Park, Mon., was duly installed as Worshipful Master of the above Lodge for the ensuing year, having been unanimously elected at the previous lodge meeting in June. The Installing Master was Wor. 1320, W. R. Williams, P.P.G.A.O. The Deputy Provincial Grand Master, Bro. Lt.-Col C. R. Lyne, P.G.D., presented Bro. John Lockyer for Installation. A large number of distinguished representatives of the various Lodges throughout the Province, with the brethren of the Kennard Lodge, were also present to support him on the occasion. Mr. John Lockyer has not only had the honour of being installed as Worshipful Master of his Mother Lodge, but has also the honour of "Provincial Grand Junior Deacon" conferred upon him by the Rt. Wor. Pro. Grand Master, (H. Martyn Kennard) of the Province of Monmouthshire.

Employment for Time-expired Soldiers and Reservists.—The Rev. E. J. Houghton, President Junior Veterans' Association, wishes us to inform our readers that they have on their books the names of a great many ex-soldiers of highly respectable character, all of them active service men, for whom they are anxious to obtain employment as grooms, gardeners, artisans, &c.

United Horticultural Benefit and Provident Society.—The annual dinner of this Society, as previously announced to be held on Tuesday, October 7, has been unavoidably postponed. It will now be held in the Throne Room at the Holborn Restaurant, High Holborn, W.C., on Thursday, October 16, 1902, at 6.30 p.m. Arthur W. Sutton, Esq., F.L.S., V.M.H., will preside.

Surrey County Council.—A course of twenty demonstration lessons on the principles of horticulture will be given at the Egham Technical Institute, by Wilfred Mark Webb, F.L.S., on Tuesday evenings, from 6.40 to 8.40. The course commenced on Tuesday, Sept. 30 last. The object of the course is to afford an opportunity to gardeners of becoming familiar with the principles upon which the practice of their art is based. The operations of horticulture form but one side of technical instruction in gardening, and while these can be mastered in a garden, more difficulty is experienced in acquiring a scientific knowledge of the subject. This is particularly the case with students unattached to colleges, and who wish to successfully present themselves at the examinations of the Royal Horticultural Society. The series of lessons will end with the examination in question April 22, 1903. Opportunity will also be given for answering questions on paper, in order that proper methods of presenting information that has been gained may be learned by candidates for the examination. Baron Schröder has kindly offered prizes of 25s. and 15s. to be competed for during the course.

Free Distribution of Superfluous Plants.—Following their usual custom at the close of the summer season, the Parks Committee of the London County Council have arranged for distributions of superfluous plants to be made as follows:—Battersea Park, at the kitchen-garden near north-west entrance, October 21; Dulwich Park, at the store yard, October 8; Finsbury Park, at the frame ground, near the Manor Gate entrance, October 22; Kennington Park, at the field adjoining band-stand, October 17; Myatt's Fields, at the store yard, near Cormont Road entrance, October 14; Peckham Rye Park, at the store yard near Forest Hill Road, Oct. 15; Ravenscourt Park, at the store yard near refreshment pavilion, October 21; Southwark

Park, at the store yard, west side of park opposite Superintendent's lodge, October 23; Sydenham Wells Park, October 16; Victoria Embankment Gardens, at the store yard, Villiers Street section, October 9; Victoria Park, at the store yard near main entrance, October 16; Waterlow Park, at the yard at the end of the greenhouses, Oct. 17; Brockwell Park, at the yard by the old garden, Oct. 16.

THE "NURSERYMEN'S TRADE GAZETTE AND SEED GROWER'S ADVERTISER."—This is a new journal, whose objects are indicated by its title. An interesting account of Mr. J. CHEAL'S visit to the States and Canada is given, illustrated by a good portrait of the traveller. Another portrait is that of Mr. R. E. ADDEY, of Brentford, who confided to his interviewer an account of how he grows his Mushrooms and how he prepares the spawn. We are glad to see our new contemporary approves of the Hall scheme, and considers the position in Vincent Square in every way an excellent one. As the nurserymen avail themselves so largely of the existing Drill Hall, it is to be hoped the new *Gazette* will urge upon its clients the desirability of contributing liberally towards the execution of the scheme.

TORQUAY DISTRICT GARDENERS' ASSOCIATION.—We are desired to inform our readers that the eleventh winter session, 1902-3, will commence on Friday, October 10, at the Abbey Road Lecture Hall, at 8 P.M. In the absence of the President, Dr. R. HAMILTON RAMSAY, through ill-health, Mr. W. B. SMALE, J.P., Vice-President, will deliver the opening address, after which the meeting will, as in former years, partake somewhat of a social character. Every member is cordially invited to attend, and bring his wife or lady friend. Anyone wishing to become a member, whether a gardener or not, can do so, and can obtain rules and programme for the ensuing year by applying to GEORGE LEE, Hon. Assistant-Secretary, the gardens, Upton Leigh, Torquay.

CEYLON.—A good specimen of Treculia africana was planted in the Royal Gardens at Peradeniya in commemoration of the KING'S Coronation. An experimental plantation is also to be established for the growth of Cacao, Tea, Cocoa-nuts, &c. Mr. DUPONT, of the Seychelles Botanic Department, has been in Ceylon to study the cultural procedures in that island, with a view to the improvement of the cultures in the Seychelles, where at present little excepting Vanilla is successfully grown in a commercial sense.

M. BARBOSA-RODRIQUES, the Director of the Botanic Garden, Rio de Janeiro, is now in Brussels engaged in the preparation of a work on the Palms of Brazil. This work is based on numerous explorations, and a long study of the family. The *Sertum Palmarum Brasiliensiarum* will form two large folio volumes with several chromo-lithographic plates. It will form a supplement to the magnificent work of MARTIUS on the same subject. It will be remembered that the herbarium of VON MARTIUS is now at the Brussels Botanic Garden.

ASSOCIATION OF AMERICAN AGRICULTURAL COLLEGES AND EXPERIMENT STATIONS.—At the annual meeting of the American Association of Agricultural Colleges and Experiment Stations at New Haven, November, 1900, a committee was appointed to consider the advisability of bringing about a conference of plant and animal breeders, and of those interested in problems of heredity. The committee met in November, 1901, at the time of the annual meeting of the Association in Washington, and reported that breeders and biologists had shown an interest, and that the formation of an association seemed feasible. The consensus of opinion is that there will be a very great advantage in a common organisation for those interested in plant and animal improvement. The committee met on July 12, 1902, and prepared the general outline given below as a basis for discussion in furthering the project of organising to develop plant and animal breeding.

PLANT AND ANIMAL BREEDERS' ASSOCIATION.

Name.—There shall be formed an Association known as the Plant and Animal Breeders' Association.

Objects.—The object of this Association shall be to study and promote the improvement of plants and animals:

(a) By co-operation in the study of heredity.
(b) By co-operation in the development of statistical and expert methods of breeding.
(c) By co operative organisation in breeding, testing and disseminating improved animals.
(d) By co-operative organisation in breeding, testing and disseminating improved plants.

Membership and Fee.—Persons interested in breeding and biology may become members by vote of the Executive Committee, and by payment of a membership fee of 2 dols. Scientific societies and plant or animal breeders' societies may become members by vote of the Executive Committee, and payment of a membership ee of 4 dols.; and such societies shall be entitled to two voting delegates or representatives at all regular or special meetings. The annual dues shall be 2 dols. for individual membership, and 4 dols. for society membership.

Officers.—The officers of this society shall consist of a President, a Vice-President, a Secretary, and a Treasurer. There shall be a Plant Section and an Animal Section, each with its Chairman and Secretary. The four general officers and the chairmen and secretaries of the two sections shall constitute an Executive Committee.

Meetings.—Meetings shall be held annually at such times and places as the Executive Committee shall determine.

Committees.—Committees shall be appointed to promote co-operation—

(a) Among biologists in university, college, station, and private laboratories. For the study, by statistical and other methods, by botanists of heredity in relation to plant breeding. For the study, by statistical and other methods, by zoologists of heredity in relation to animal breeding.

(b) Among breeders of animals and plants. For the improvement of the systems of the various herd books. For the encouragement of co-operative associations for breeding animals. For the improvement of statistical methods of breeding, testing, and disseminating the staple field crops. For the improvement of statistical methods of breeding, testing, and disseminating vegetables, fruits, and trees. For the betterment of score-cards used in judging animals in competition at shows. For the betterment of score-cards used in judging varieties of plants in competition at shows. *Committee: W. M. Hays, Chairman; Thos. F. Hunt, H. J. Webber, L. H. Bailey, C. F. Curtis.*

YUCCA AND ITS ALLIES.—Prof. TRELEASE, the Director of the Missouri Botanical Garden, has just issued in the thirteenth annual report of that garden an exhaustive monograph of Yucceæ, including Hesperaloe, Hesperoyucca, Clissoyucca, Yucca proper, and Samuela. Of the true Yuccas some twenty-eight species are described, many of which are in cultivation. There are also numerous varieties, and not a few hybrids, the number of which latter is likely to be largely increased by M. DELEUIL of Marseilles and Mr. SPRENGER of Naples. The description of the individual species is accompanied by a full synonymy and ample bibliographical references, while no fewer than ninety-eight photographic illustrations are given, showing the plants growing in their native localities, details of their conformation, maps showing their geographical distribution, and other particulars, the mere enumeration of which will show what a valuable addition has been made to the literature of garden-botany, and of botany generally. The Yucceæ are characteristically "Xerophytes," growing in dry localities, though having considerable powers of adaptation to circumstances often very different from those to which they are subjected in their native localities. Yucca gloriosa, for instance, has for long been an inhabitant of our gardens, and is, moreover, one of the plants which best resists the contamination of a London atmosphere; its thick skin, and the fact that the two surfaces of the leaf are of the same character, are endowments which probably greatly increase its powers of resistance. A full index renders the monograph easy to consult. A more stately group of plants it would be difficult to find, and one, on the whole, not difficult to cultivate—circumstances which increase the value of Prof. TRELEASE'S monograph.

THE HAILSTORM IN THE VALLEY OF THE MEDWAY.—We have already alluded to this disastrous storm, which fortunately was confined to a relatively small area. It is interesting to find in HASTED'S *Kent*, as quoted by the *Kentish Observer*, a record of a similar storm, which occurred in 1763 in the same district. The historian, under the heading of Maidstone, writes:—"On Friday, August 19, 1763, a most violent storm of wind and hail, accompanied with thunder and lightning, spread a general devastation over this parish and the adjoining neighbourhood. It arose at sea off the coast of Sussex, and entering this county at Tunbridge Wells, passed quite across it to Sheerness, being 40 miles in length and in breadth from 2 to 4 miles. Its line of direction was nearly from S.W. by W. to N.E. by E., over the several parishes of Tunbridge, Speldhurst, Penshurst, Tudely, Capel, Pembury, part of Hadlow, Yalding, Hunton, Brenchley, Mereworth, East and West Peckham, Wateringbury, Nettlestead, East Malling, Teston, East and West Farleigh, Barming, Loose, Maidstone, Boxley, and Detling, after which, having spent the greater part of its force, the damage done by it became much less considerable; almost the whole growth of Hops, Apples, Filberts, Corn, with whatever else was on the lands, were entirely destroyed by it. The damage done to the trees and buildings was as great in proportion, many barns and even houses were blown down, and scarce a pane of glass to the southward was left unbroken; and on that side of the High Street in the town of Maidstone not only the glass, but lead and frames of the windows were broken, and driven in by the violence and largeness of the hail, which beat as loudly against the shutters as the strongest blow of a thick club would have done. The hail indeed might rather be deemed pieces of ice, from its different irregular shapes; at Barming one piece was taken up in the form of an oyster, measuring 9 inches round the edges, and some were taken up ten days after the storm which then measured 4½ inches round. Great numbers of small birds were killed by it, as were several hares, pheasants, and partridges, and the trees were everywhere stripped of almost all their leaves. So general a desolation in this country has never been remembered."

PUBLICATIONS RECEIVED.—*Agricultural Bulletin of the Straits and Federated Malay States.* Edited by H. N. Ridley. August. Contents: Fruits of the Malay Peninsula, by the Editor; Observations on Collecting Latex, by M. H. Lecomte; Penang Gardens Rubber Tree, by C. Curtis, &c.—*Bulletin of the Botanical Department, Jamaica.* August. Contents: Vanilla Culture in the Seychelles Islands, by T. J. Galbraith; Notes on Plants in the Gardens, &c.—*Report on Tobago Botanic Station for* 1901-1902. "The general condition of the station has steadily improved; 200 specimen plants have been put out in permanent places, and the flower, fruit, and vegetable gardens have been well maintained. Experiments with many economic plants have been carried on, and the most promising food-plants regularly distributed to settlers. There appears to be a steady demand for Cacao plants."

AMERICAN NOTES.

EIGHTEENTH MEETING OF THE SOCIETY OF AMERICAN FLORISTS.

Asheville, North Carolina, was the American florists' Mecca from August 19 to 22. From all the important cities of the country where florists have any being, delegates from local clubs journeyed hundreds of miles, generally in special cars, for the eighteenth annual convention of the Society of American Florists and Ornamental Horticulturists. There are many horticultural societies having State charters, but this organisation is the only one in the whole horticultural field which has a National charter. The meeting just passed is a more than usually memorable one. For the first time in its history, the Society has gone to the South. The North and South are passing bouquets to each other just now. The old era of the war has passed into history, and a new era of a thoroughly united brotherhood has come. It may be of interest to the better understanding of the feeling referred to, to remind our friends that President Roosevelt is the first occupant of the White House to whom "the war" is merely a history. His immediate predecessor was an active participant in it.

The chief discussion before the society on this occasion was the horticultural possibilities of the South, and particularly of North Carolina. The state itself presents a greater range of climate for its size than any other state, its vegetation and its scenery simply baffle all attempts at description. It is one of the thirteen original states; it is said to be the richest state in the union botanically. On her soil was the first settlement in the United States, and there too was born the first white child of English parentage. Within the narrow compass of its mountain region, according to Asa Gray, is to be found a representative of every plant family which flourishes between the latitudes of Labrador and Wilmington. The Rhododendron and the Azalea clothe the mountain sides, and the horticulturists of the country are turning their eyes upon the State of North Carolina as a field of great possibilities.

Bulbs, &c.

Huge quantities of shrubs, bulbs and trees now imported from Europe could be grown there. A million dollars' worth of bulbs is now imported from Holland. Prof. Massey, who formerly held the Chair of Horticulture at the State College, has devoted years to experiment in the interests of the incipient bulb industry. He has tried practically all the soils of the State, and he finds that Hyacinths, Narcissi, and Dutch bulbs generally can be grown, and to a profit. In a small way he has raised bulbs, and they have sold for sufficient to cover the cost of production.

Still, he thinks that the Dutch bulb will not be produced until a change comes over the method of cultivation. An intense culture is necessary, and it is a thing that the people of a fertile country do not kindly take to. Lilium candidum has been grown satisfactorily. He tells of a curious result in the acclimatising of the Van Sion Narcissus. He secured imported bulbs some years ago, and they produced abortive greenish flowers; but he persisted, and gradually the normal condition of things has been bred into it, until to-day the North Carolina bulb will flower in the open air with practically no trace of green, and when forced under glass it is all that can be desired. The Chinese Narcissus (Tazetta), grown in North Carolina, has been proved to come into flower earlier than the imported article. A great American bulb industry is being developed to compete with those of Italy, France, and Holland. The Easter Lily, L. longiflorum Harrisii, the supply of which comes almost entirely from Bermuda, will, in all likelihood, soon be produced in North Carolina. All other things being equal, the domestic article would mean a saving of 25 per cent. in cost which now goes in customs duties. The Tuberose is already very largely produced here, and in the same section of the country other bulbs can naturally be grown.

Mr. J. K. M. L. Farquhar, of Boston, urged upon the society the necessity of modelling itself upon the lines of the Royal Horticultural Society of England. As an old Chiswick man he knows what he is talking about; and his wide travelling has given him a depth of view that makes his opinion more than usually weighty.

Mr. W. R. Smith, Curator of the Botanic Gardens, Washington, D.C., reported from the official statistics that 45,000 dollars' worth of Tuberoses are already exported annually. The United States imports plants, bulbs, &c., cultivated for their flowers, to the value of 76,445,800 dollars. The annual income from cut flowers, according to the census bureau in the United States, is estimated at between 12,000,000 and 14,000,000 dollars. The sale of Roses averages 6,000,000 dollars annually, with an annual production of 100,000,000; Violets represent 750,000 dollars, with an annual production of 75,000,000. The Chrysanthemum sales value 500,000 dollars.

Cut Flowers.

Questions of marketing cut flowers, both at wholesale and retail, were discussed in detail. Mr. Edgar Saunders, of Chicago, presented a most comprehensive paper, in which he traced the development of the wholesale florists' business in all the large cities. New York had the first wholesale florists in 1875. Chicago came next, when J. C. Vaughan, a seedsman, who sold flowers on commission in connection with his other business. The trade began in Boston in 1879, and in 1878 in Philadelphia. There are at present eighty wholesale cut-flower firms in the country. According to figures presented, it seems that about one wholesale store per 112,000 of the population is the usual ratio in the large cities.

Insurance against Loss from Hail.

The Florists' Hail Association, which insures the glass of florists against damage by hail-storms, does an increasing volume of business, and over 16,000,000 square feet of glass are insured. The Society has paid out during the year about 8,500 dollars for losses. There was a time when a belief prevailed that the hail did damage within a certain belt, but each year a new section is attacked, until the belt has burst, and now florists in all parts of the country are finding it a good investment to insure against damage by hail.

Eel-Worms.

One of the most generally interesting matters reported to the Society was by the State Vice-president of the district of Columbia. It dealt with a remedy for the nematode worm, which seriously attacks Roses under glass.

"For the past year the pathologists of the Department of Agriculture have been endeavouring to find some method of fighting the eel-worm, or nematode. After testing a great many substances supposed to kill these worms, it has been found that the best material to use is a dilute solution of formaldehyde, about 1 per cent. solution being sufficient to very quickly kill any nematode touched by it. An extensive experiment in the treatment of the root nematode of Roses, carried out by Mr. J. Louis Loose, of Washington, in accordance with the directions furnished by the Department, was very successful.

The treatment was made on February 10, including plants of several varieties, namely, The Bride, Kaiserin Augusta Victoria, Madame Abel Chatenay, Niphetos, American Beauty, Liberty, and Meteor. The solution was made up on a scale of 4 lb. of the commercial formaldehyde to 50 gallons of water. Fifteen thousand plants were treated, requiring about 200 lb. of formaldehyde, costing 18 cents per lb. The mixture was applied with a hose connected to a force-pump. While at first all the young feeding roots that the plants had, as well as the nematode galls and nematodes in the soil, were killed, the treated plants soon recovered from the check and formed fine new feeding roots, while the untreated plants remained stunted and diseased.

"The bud nematode of the Violet, it is found, is also very easily killed by formalin, although it is not practicable to use formalin on the plants. About all that can be done in order to fight this pest is to carefully throw out of the stock every plant showing any sign of bud nematode; it should be pulled out and destroyed, otherwise the disease will spread from plant to plant. It does no good to cut out the diseased part. The nematode is easily killed by drying, and it is, therefore, suggested that houses in which the disease has appeared be run rather dry, especially permitting the surface soil to dry and keeping it in the form of a dry mulch. Heavy shading is undesirable in cases where the disease has appeared, as under such conditions nematodes getting upon the surface of the soil and on exposed places on the leaves will not be destroyed, whereas if they are exposed to the sunlight they are likely to become dried up and die."

The President's Address.

The President of the Society, John Burton, Wyndmoor, Pa., in a comprehensive address recommended that the society, following in the footsteps of the Royal Horticultural Society, should institute some series of honorary award to horticultural teachers and leaders on lines parallel to the Victorian Medal of the Royal Horticultural Society. He noted a change coming over the trade conditions in an increasing demand for hardy herbaceous plants. "Hardy plants are rapidly coming to the front, and less and less trade is to be expected in soft-wooded stock for carpet and other kinds of bedding out. The new order of things is with us." This, I may add, is the dominating feature of the horticultural trade to-day. Hardy stock, whether of shrubs or herbaceous plants, is the coming backbone of the business. People are tired of the formal bedding system. Permanency and artistic grouping form the dominating ideas of the day. It was suggested that special committees be appointed in the interests of certain groups of plants, and in particular the Phlox and the Peony were named. The Society of American Florists endeavours to control the interests and actions of all the special societies; but although much talk has been indulged in, no practical outcome has resulted. The Chrysanthemum Society indeed is the only one that has fallen thoroughly into line, and it now shows a tendency to break off. This year it will meet in Chicago, and a Chrysanthemum convention, the first of its kind, will be held. Mr. A. Herrington, of Madison, N.J., is the president of this society.

In the exhibition a most notable feature was Pierson's sport of Nephrolepis exaltata, really

a magnificent decorative Fern; and the judges did not forget to become enthusiastic, describing it as "the finest decorative Fern introduced in recent years." The Pinehurst Nurseries, of Pinehurst, N.C., showed Abies arizonica argentea, already described and figured in the *Gardeners' Chronicle*.

Next year's convention of the society will be held at Milwaukee, Wisconsin, a city famous for parks and breweries. President Burton was re-elected to his office as, in consequence of a sad bereavement, he was unable this year to be in attendance. Mr. Burton is an Englishman, having been born in Staffordshire in 1852. To-day he is one of the most famous producers of American Beauty Rose, and has attained prominence as a public man, representing his country in the Pennsylvania Legislature in 1890. C. C. Pollworth, of Milwaukee, is Vice-President, and W. J. Stewart, of Boston, was re-elected to his office as Secretary. The Society of American Florists is to-day more flourishing than ever before, with a membership of 931.

A Pæony Society has been started, having as its avowed purpose the systematising of the present muddle in nomenclature of the garden varieties of Pæonia sinensis. It proposes to reduce all present names to a standard of fifty or a hundred. Undoubtedly the Pæony is a plant that could be more profitably used in many parts of this country. It will thrive where other showy garden plants dwindle away, and it is particularly well adapted for the large interior part of the country, in many places supplanting the Rose. *Leonard Barron.*

GARDENERS IN THE UNITED STATES.

SOME months since I wrote you respecting the opportunities offered to gardeners in this country. My remarks were adversely criticised by Mr. Archibald Smith, of Boston. At that time I had no inclination to enter into a controversy on the matter, nor indeed have I now, but I should be obliged for an opportunity of stating that my continued stay here has only served to strengthen my earlier opinions. Mr. Smith in assuming I wrote in exuberance of spirits over the beneficial change in my own position and prospects, was very much "at sea," and he shares the inevitable fate of all who jump at conclusions. I wrote from a general and not a personal standpoint, and hoping I might benefit aspiring young gardeners who find in England no scope for their abilities. Acting on the advice of the British Consul, I was obliged to withdraw the offer I made of assisting to place anyone coming out, otherwise I could have been useful to several. I am glad to know a few men had sufficient confidence in themselves to make the trial, and I have met four who have found no difficulty in doing well, and who are comfortably situated and very much better off than they were in England. The disadvantages mentioned by Mr. Smith (the high price of house-rent and provisions) does not affect a young gardener here, as he invariably gets both of these things provided for him. Again, his statement that "a dollar here has only the buying power of the florin at home" is an exaggeration, whilst I fail to see how any sane man who has tried both could possibly prefer an inexperienced foreigner or coloured man to an experienced Briton. My previous letters were not approved of by several of my friends here, who thought I did unwisely to invite competition, but judging from the sample of assistants some persons have to depend upon I think there is yet room out here for many capable young men. But I have no desire to further induce them to try it. My object in answering Mr. Smith is to show I have not "gone back" on my former convictions, and that my friends in England should not "write me down an ass." *Alfred Harding, Villa Nova, Genna, U.S.A.*

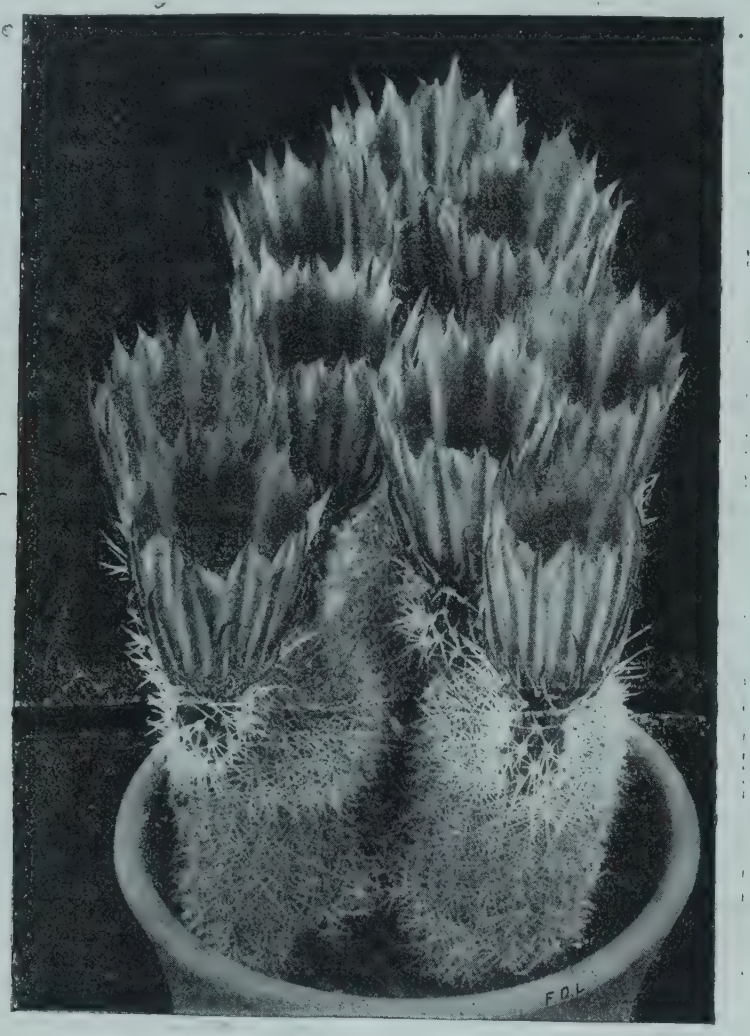

FIG. 84.—CEREUS DASYACANTHUS.
(Colour of the flower pale yellow.)

CEREUS DASYACANTHUS.

A PLANT originally from Texas. Entirely covered with spines, as is the Rainbow Cactus; flowering very abundantly; and each flower lasting from four to six days. The flower is of a pretty, pale yellow colour; the sepals are pale yellowish-green, with a central reddish stripe; the stamens very numerous (more than 1,500) and of a deep yellow tint. The general appearance of the flower is beautiful, and funnel-shaped. The plant bears many fruits, each fruit is also covered with white thorns. This Cereus grows in an unheated house.

CEREUS HOULLETI.

A hot-house plant, originally from Mexico; of very rapid growth, and covered with a sort of down as is C. senilis, recently figured, but the hairiness is more silky and whiter than in C. senilis. When it has attained to a certain size the plant blooms annually several times, and the fruit ripens rapidly, being often completely ripe in the space of four weeks.

The accompanying illustrations (figs. 84 and 85) are from photographs sent by M. de Laet, of Contich, near Antwerp.

FRUIT REGISTER.

APPLE "BISMARCK."

MR. WOODWARD, in his article in the *Gardeners' Chronicle* of September 13, asks how this variety has behaved in other parts of the country, it having been a failure with him. My own experience exactly coincides with his, and the disappointment is greater, because we were given to understand that it was a tremendous cropper, although so far the crop here has not paid the cost of the trees; and a period of seven years is, I think, long enough to test any variety as regards its productiveness.

We have them growing on the Paradise and free stocks, and the quantity of fruit produced on each is about the same; the Paradise exciting no influence on the variety in question, the same as it generally does with most varieties. Its freedom from fruit-spurs is another peculiarity, and it is not possible to induce them to form any. When pinching was resorted to, the wood-buds did not change into fruit-buds, but just started another bud; so now I keep the growths sparse and thin by pruning in the summer, so as to allow those remaining to mature, and produce fruit-buds on the current year's growth, which seems to be its natural mode of fruiting.

Another fault for a late-maturing Apple is, that a very little wind will blow them off: and as all growers know, windfalls do not keep long. The fruit itself is all that is desirable, and is excellent for culinary purposes. *F. K. D., Cheshire.*

HOME CORRESPONDENCE.

LABURNUM FLOWERING TWICE. — What is apparently a seedling about eight years old, growing in a somewhat shaded position, has flowered here. The position of the tree, together with the coldness of the season, would tend to give one the impression that it was a case of retarded flowering; but this is not so, as the tree flowered this year at the normal flowering period. Can anyone explain this—as it seems to me—most remarkable occurrence? I enclose a specimen spray. *J. Harrison, Sutherland Road, Edmonton.*

SHOW AURICULAS. — In the issue of the *Gardeners' Chronicle* of September 20, under the heading, "Show Auricula," appears the observation, "Horner's Buttercup is a very fine yellow self, but it ranks lowest among the selfs, probably because it represents the normal colour of the flower." Now, Buttercup is a most fascinating flower, and the only yellow I have seen possessing show properties. Is the normal colour of the show Auricula yellow? From experiments made by Mr. Douglas, in response to a request made, I believe, about the year 1887, the show Auricula is now supposed to be the result of a cross with Primula Auricula. Is this Auricula normally yellow? Again, is the alpine Auricula normally yellow? If so, then the transformation of colours in both show and alpine varieties is indeed marvellous. *W. F., Loughborough.* [The show Auriculas in all their divisions of grey-edged, green-edged, white-edged, and selfs, are derived from Primula Auricula, a plant having flowers of many colours, but normally yellow. What the florists call "Alpine Auriculas" are merely varieties of P. Auricula, with a yellow or white eye, and lacking in powder; the body colour various, the edge one-coloured. Ed.]

FINE BARRINGTON PEACHES.—The photograph which I venture to send you shows a dish of Barrington Peaches taken from a tree growing in a forcing-house in the gardens at this place. The uppermost fruit in the dish weighed a trifle over 1 lb. 4 oz, and the four fruits together weighed 3 lb. 14¾ oz. The tree from which these were taken carried thirty-six good fruits this season, and I have had 1,750 Peaches and Nectarines from trees growing in this house this year; it is 90 feet long, 7 feet wide, and 14 feet high. *T. Pateman, gr., Node, Codicote, Welwyn.*

DUTCH FLORISTS.—A friend of mine (I purposely refrain from specifying either persons or plants concerned) has just sent me comparative quotations from two firms for a collection of a certain strain of flowering plants. The one firm is a highly respectable English one, and the other a Dutch firm of equally high standing, from whence my friend has repeatedly obtained thoroughly satisfactory plants. The total price for thirteen named varieties is in the one case 19*s.* 8*d.*, and in the other 8*s.* 11*d.* This being so, it is obvious that economy should dictate that the order should go abroad, as business-men however patriotic can scarcely be expected to pay considerably over 100 per cent. more to encourage home trade. Surely such a difference as is exemplified by this typical case (which I know to represent a very large number, as can be easily ascertained by comparison of prices, given in the foreign catalogue with which flower-lovers are flooded with those issued by home firms), implies either a lack of enterprise as caterers for the multitude, or some radical defect in mode of culture which handicaps business by undue cost of production. Sometimes doubtless the question of quality comes in either in the form of genuine varieties as named, or imperfectly established specimens, but these factors certainly do not exist in the case cited, for I know my friend's garden well, and have repeatedly been shown very beautiful and thoroughbred things which he has acquired on the continent far more cheaply than he could do here. My friend concludes his letter with the following characteristic but undoubtedly pertinent query, "What in the name of Beelzebub is England about, allowing foreigners to tap our roots in this way?" I think our florists would do well to take the query to heart, and if possible find a remedy. The taste for floriculture has extended so vastly in recent times that the field is almost unlimited, but the question of price is in the majority of cases a determining factor as regards the acquisition of novelties, and as our home florists are on the spot and in more immediate touch with the consumer, and their foreign competitors to judge by the extent of their businesses do not work at a constant loss, it is a thousand pities that any conservative adherence to high prices by the former should afford the latter an opportunity of, as my friend says, "tapping the roots" of their trade. *C. T. D.*

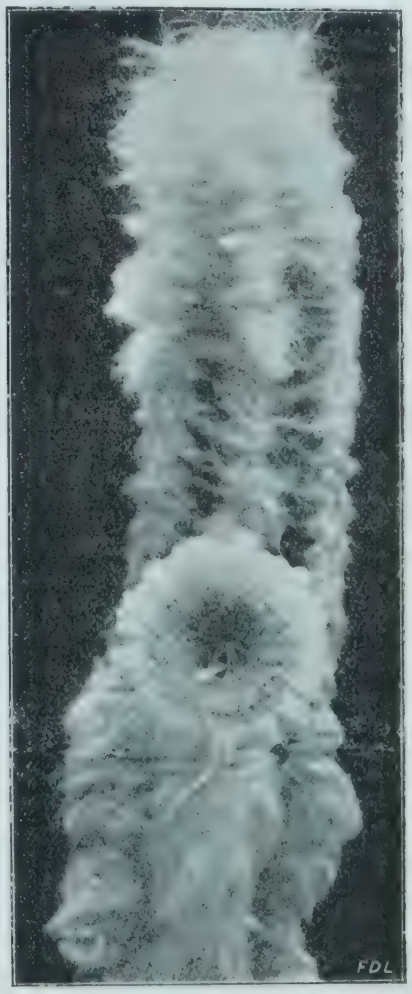

Fig. 85.—Cereus houlleti, *Lem*

(see p. 252.)

SCHUBERTIA GRANDIFLORA.—Among plants that are difficult to cultivate is the beautiful Schubertia grandiflora. If this plant could be grown with the same ease it would certainly exceed the Stephanotis in regard to popularity, both for its flowers and their perfume. I was therefore agreeably surprised to find a plant growing luxuriantly at Messrs. Peed's nursery, West Norwood, in an intermediate Orchid-house. The plant had pushed shoots through a ventilator, and is making a good show outside at the present time. *W. G. Humphreys.*

THE STRAWBERRY-GRAPE.—I am sending you a bunch of the Strawberry-Grape, a variety that is a great favourite with Viscount Downe. This Vine was planted at Dingley in the late vinery some fifteen years ago, on an iron pillar standing midway between the back wall and the front of the vinery, and bears a considerable number of bunches every year. It is a very early ripening variety, and is ready for use long before Madresfield Court, growing in the same vinery. It is a useful Vine for covering pergolas, or clothing rough poles in the shrubberies, the foliage being different to that of many of the genus Vitis. *F. Clipstone, Dingley Gardens, Market Harborough.* [A small bunch of small, jet-black berries, viscid, and of agreeable flavour. Ed.]

SALVIA SPLENDENS. — I send some spikes of the old Salvia splendens, cut from plants that were taken up from the open ground and potted. The seeds were sown in February last, and the plants are now about 2 feet high and 2 feet through, with twenty or more flower-spikes upon each. I find that seedlings produce much finer spikes than plants raised from cuttings. I do not know of any plant that gives a better return for the small amount of labour it requires. *Geo. Baker, The Gardens, Membland, near Plymouth, Sept.* 29. [Excellent flowers. Ed.]

LILIES AND THEIR CULTURE.—I note that Mr. Barr, in a recent issue, takes sundry exceptions to some cultural details contained in my series of articles on "Lilies and their Culture," published in your issue of July 13, 1901, and subsequent issues; and that he further objects to the nomenclature of certain Lilies, and my description of others. After careful reconsideration of my notes and Mr. Barr's protests, I find that it will not be possible for me and Mr. Barr to agree on any one point he raises; but in justice to myself, and to readers of the *Gardeners' Chronicle* who may have been guided by my articles, I would like to give, very briefly, my reasons for adopting the nomenclature Mr. Barr cites as incorrect, and to deal, also briefly, with the other points he raises. My remarks that "the garden forms of L. speciosum are a great advance on the old types imported from Japan twenty years ago," were based upon the knowledge that such good things as L. s. album novum, L. s. Melpomene, L. s. Krætzeri, &c., now available in quantity, were comparatively unknown to cultivators at that time, and that forms of much less value were then being sent over from Japan, which are now sent in much less quantity. The Dutch probably sent their share, as now. The name "album novum" for the snow-white L. speciosum assuredly must stand—it is as widely removed from L. s. punctatum of the Dutch as is possible in all desirable garden characters. The bulbs exactly resemble those of L. s. Krætzeri save in the depression on one side of the growing point, and the plants can scarcely be distinguished when out of flower. L. s. punctatum as now sent to England by Dutch growers (it does not occur among imported Japanese speciosum), is a puny grower, with three to six flowers of small size, spotted with pale pink on the inside; and the bulb is conical and reddish. The plant, from a garden point of view, is but rubbish compared with L. s. album novum. The Japanese have long separated this album novum from Krætzeri, sending the former to this country quite true. It is now widely known as L. s. album novum; its nearest ally is Krætzeri. The only feature it has in common with L. s. punctatum is the yellow anthers; the colour of the anthers in L. Krætzeri is very variable, though mainly darker than any album novum. I do not know L. speciosum punctatum album, nor have I been able to trace any reference to the plant. L. s. Krætzeri, which Mr. Barr elects to call L. speciosum roseum album, is, according to Mr. Baker, the name given by Duchartre to a form which has "white, very symmetrical flowers, the segments of which are marked with streaks of green on the outside, with green mid-ribs, and a green star-shaped eye in the centre of the flower, and green stems: Duchartre." This is the Krætzeri of commerce, now widely known and authoritatively established as Lilium speciosum Krætzeri, the Japanese L. s. album. These plants I have already described in my notes, and I now enclose flowers for comparison. The names L. speciosum roseum album, ventured by Mr. Barr, would fit the Dutch L. s. album better than it would Krætzeri, were a new name necessary or desirable for either. The statement I made that L. auratum

bulbs of medium size are better adapted for border planting than very large ones, was based upon actual experiments with thousands of bulbs, and my reasons for choosing these for general planting are fully set forth in the original articles. There cannot be any doubt of this matter, though exceptions may occur under various conditions. Lilium Batemanniæ (Hort. Wallace) is quite distinct from L. elegans venustum (Baker) in nearly all important characters; and Mr. Baker when describing L. Batemanniæ at the Lily Conference said—"Future experience with the plant may prove it to be a hybrid" (see report of Lily Conference in *Gardeners' Chronicle*, July 20, 1901, p. 62). A statement like this from our highest authority on Monocotyledons, and the author of L. elegans venustum, removes all doubt as to any real identity between the two plants. The matter for reconsideration is whether L. Batemanniæ is not distinct from L. elegans? I showed the plant to Dr. Masters at a meeting of the Royal Horticultural Society in the Drill Hall last year, and his opinion was that the plant was widely distinct from L. elegans, and had nothing whatever to do with it—a decision with which those who grow the plants will readily agree. The forms of L. longiflorum have ever been subjects of vexatious debate, for these garden forms of well-known plants (or selections) are difficult to describe with accuracy, for the standard varies in almost every nursery. L. longiflorum giganteum is quite distinct (horticulturally) from L. l. Takesima (Jamajuri of Dr. Siebold). This latter plant may have been irresponsibly called giganteum for aught I know to the contrary, but the Takesima of British commerce, and the Japanese, agrees with my description of Dr. Siebold's plant. L. longiflorum is, as I remarked, a selection, not a specific variety; and on account of its floriferousness, easy growth, and freedom from disease, it is the best commercial longiflorum — the one grown by all big growers of repute. One 12-inch bulb I potted last year produced three stems, yielding an aggregate of twenty-six fine pure white flowers. Its nearest ally is Harrisii of the Bermudan growers; it may be, and probably is, just a robust sport of L. longiflorum even as is Harrisii, and destined to hold sway until worn out, as Harrisii has done. At present it is steadily superseding L. Harrisii, as it is more reliable, less costly, and in no-wise so likely to succumb to disease. The difference between the three single forms of L. tigrinum are so marked, that I am surprised to find the matter under debate. Mr. Barr cannot have obtained the true plants, or he would be one of the first to admit that they were quite distinct. These forms I have fully described in my notes, and I now send flowers for comparison. I may here add that I gave my series of Lily articles considerable study before I penned them. I had a big acreage of Lilies from which to draw up descriptions; four of our leading Lily merchants kindly advised me on doubtful points I submitted to them, and every plant described was seen alive and in quantity, and the cultural opinions I gave were based upon a study of the methods of rooting—the only reliable source of information, and upon experience in growing one of the biggest collections in this country. *Geo. B. Mallett.*

ARISTOTELIA MACQUI.—This evergreen South American shrub is fruiting very freely in Ireland this season, and the enclosed specimens were sent to me by Messrs. Pierce & Co., of Wexford. Introduced from Chili in 1733, it is a plant but seldom seen in gardens generally. The late Mr. Bridgeford, who had a nursery at Balls Bridge, Dublin, was very fond of it, and specimens of both the green type and the yellowish variegated form are still existent in neighbouring gardens and shrubberies, varying from 6 to 14 feet or even more in height. The deep coloured berries are said to have been imported and used in the colouring of wine, but probably are now superseded by other things. The shrub belongs to the Lime-tree family (Tiliaceæ), and the genus is etymologically remarkable as having been named after the old philosopher, Aristotle. *F. W. Burbidge.*

BOILERS AND FLUES.—With the arrival of autumn we are reminded that artificial heating of our glasshouses will soon be needed pretty regularly, and I would like to call attention to the fact that the boiler, and other flues and chimneys should be thoroughly cleaned so that getting up heat in boilers and furnaces will not be a matter of difficulty. It is also far easier to regulate the heat when the flues are cleansed of soot, and dampers are made to act properly. I do not approve of the young gardeners being told to do this dirty work, but would rather employ a sweep or a labourer who would care to earn an extra shilling or two. I make it a rule in my garden to employ a sweep twice in the year and get the work done properly, and I would advise all head gardeners to do the same. *S. O.*

APPLE BISMARCK. — In the *Gardeners' Chronicle*, p. 192, Mr. G. Woodward asks readers how they succeed with the variety Bismarck. I may say that here, on young trees planted within the last five years, it is most satisfactory, all trees having heavy crops of well-shaped, highly coloured Apples, of attractive appearance. The growth is clean and healthy. Our plants are in the form of dwarf bushes, and they are worked on the Paradise stock. The soil is rather light and warm, and all kinds of fruits ripen very early. *J. G. Weston, Bessborough, Piltown, Co. Kilkenny.*

SALVIA SPLENDENS SILVERSPOT. — Having seen a few lines about Thorburn's new Salvia splendens Silverspot in a catalogue of Drummond & Sons, Dawson Street, Dublin, I bought a packet of seed just to find out the plant's good points. I am quite satisfied with the result. It is distinct from any other Salvia. The leaves are of a dark green tint, with cream-coloured spots of different sizes scattered over them. One feature of the plant is, that all the leaves are more or less spotted. The variety flowers as profusely as S. splendens grandiflora. It is a free grower, of neat habit, flowering in the winter. *John Scott, Downside Gardens, Stoke Bishop.*

MARKET GARDENING.

CANON HALL MUSCATS IN GUERNSEY.

WHATEVER difficulties may be experienced with this Grape in England, there can be little doubt that the soil and the climate of Guernsey suit it to perfection. My own experience of this variety when growing it on the mainland was, that it was a decidedly shy setter, and that the canes would not thoroughly ripen. Added to this, it was not a "bad weather" Grape, and would soon lose a larger proportion of berries than Muscat of Alexandria.

Since I have had Canon Hall under my observation in this island, I have noticed none of these drawbacks. The bunches set quite freely without any assistance, except for an occasional tapping of the rods. The fruit ripens in less time than even the black Hamburgh, and the "Indian summer" which generally gladdens the autumn here, ripens the canes to a nicety.

In most of the vineries here the preparation of the borders for Vines consist of little more than a double digging, working in a small quantity of crushed bones and charcoal, and with that kind of preparation only the variety under notice will produce very satisfactory bunches weighing from 5 to 6 lbs. each. At the present time when Hamburghs are selling at 6*d.* per lb., and Muscats are only returning 1*s.* 3*d.*, ordinary samples of this magnificent Grape are realising 2*s.* 6*d.* Obviously this is the Grape for Guernsey growers to turn their attention to. It could easily be made a special feature, and in these days of discrimination, when the markets are glutted with produce of medium quality, anything like this which is so much superior to other varieties is sure to command remunerative prices.

Apropos the Grape sent in the box. It has not failed to colour through any neglect. The whole of the other bunches on the rod ripen well every year, but this particular spur has produced fruit of the same colour for several years. *F. J. Fletcher.*

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

SEPTEMBER 23.—*Present:* Dr. M. C. Cooke, in the chair; Rev. W. Wilks, Messrs. G. Massee, Saunders, Holmes, Douglas, Dr. Rendle, and Dr. Masters.

Diseased Helianthus.—Stems of Helianthus exhibited were rotting at the base, and dying off in great numbers. Externally there were, here and there, traces of white mould, but when cut down longitudinally the pith was found to be occupied by numerous sclerotia similar and perhaps identical with those found in Potato-haulms and Tomato-stems, and appear to be quite sufficient to account for the dying off. This Potato disease is fully described in Worthington Smith's *Diseases of Field Crops*, p. 15, and the life-history of the sclerotium given, in which it is shown that the ultimate development is a small Peziza, there called Peziza postuma, but undoubtedly the same as had previously been described as Peziza Libertiana, and more recently called Sclerotinia Libertiana, and by Massee as Sclerotinia sclerotiorum (see Massee's *Plant Diseases*, p. 150, fig. 32). It seems to be found indiscriminately upon plants of various kinds, but commonly on Potato and Tomato, Chrysanthemum, Cucumber, Turnip, and Sunflower. *M. C. C.*

Pear disease.—The Pears sent to the last meeting, cracked, shrivelled, and blackened by the attacks of Fusicladium pyrinum. In no case could I find any evidence of the presence of the Entomosporium, which produces similar results. It is noteworthy that, intermixed with the Fusicladium, were found profusely the hyaline, curved, and septate conidia of some species of Fusarium, which certainly bears no relationship to the Fusicladium, and would be a distinct parasite. This requires further investigation, since many of the species of Fusarium are destructive parasites, and this has every appearance of being a new and undescribed species. *M. C. C.*

Leaf-spot of Celery.—The leaves of Celery exhibited were spotted with somewhat orbicular, bleached spots, at first brownish, and then whitened towards the centre. Scattered over these spots are the minute black dots which represent the perithecia, enclosing the sporules. These are not so numerous as in most other species, and the sporules are long and thread-like, oozing out in a tendril in damp weather (35—40×1—2 μ). It is the same species which occurs on the leaves of Parsley, and is known as Septoria petroselini (Desm.). It occurs also in France, Belgium, Germany, Italy, and South America. *M. C. C.*

A vote of thanks was voted to Dr. Cooke by acclamation.

Abnormal Pear.—Rev. W. WILKS showed an instance of a fleshy fruit-like growth resulting from a double flower. The end of the flower-stalk in these cases becomes fleshy internally, but externally bears leaves in successive whorls one above another, like so many calyces. No true fruit or seed is formed. The condition is not uncommon.

Clubbing in Cabbages.—Mr. MASSEE pointed out that if the seed-bed were dressed with gas-lime, and the seedling plants get over the first three weeks of their life free from attack, there is no danger of subsequent infection.

Chlorosis of Apple and other Trees.—In reference to this subject, discussed at the last meeting, Mr. GAUT now sent twigs of Apple trees and of Raspberries from a garden in Yorkshire, together with samples of the soil taken at a depth of 9 inches and of 18 inches respectively. It was suggested that the samples be sent to the analyst to determine whether or no they contain copper.

Pollination in Orchards.—It has been frequently noticed that in large plantations of one particular variety

of Apple or Pear the quantity of fruit produced greatly diminishes from the outside of the plantation towards its centre, and the explanation apparently is that foreign pollen, that is, pollen from another variety of Apple or Pear, as the case may be, is necessary for the proper fertilisation of the ovules, in order that fruit may be set at all. It seems also that incomplete fertilisation may also take place, owing possibly to weakness in the pollen of the particular variety, resulting in the formation of misshapen or malformed fruit.

The fertilisation of the ovules depends chiefly upon three factors :—

1. The occurrence of suitable weather conditions at the time of the receptivity of the stigma and the ripening of the pollen.

2. In the case of self-sterile varieties, the presence of bees or other insects to carry pollen from one flower to another, Müller gives a list of nine bees visiting flowers of Apple (Bombus hortorum, L. ♀ being especially abundant), as well as other insects (seven) visiting the flower for honey or pollen; and a list of six bees (Apis mellifica, L. ♀ very abundant), as well as twenty-four other insects visiting the flowers of Pear (*Fert. of Flowers*, pp. 238, 239). He also says that if bees fail to visit the flowers, self-fertilisation occurs in each case, but he is presumably speaking of the wild plants, Pyrus Malus, L. and P. communis, L., and not of a garden variety.

3. In the case of the self-sterile varieties, the presence of plants in the near neighbourhood whose pollen will fertilise the ovules of the self-sterile variety.

This last factor is the one most under the control of the grower, and therefore the one upon which definite knowledge is essential, and though much has been done in America in finding out which are the self-sterile varieties, &c., very few definite experiments carried out on lines which admit of a minimum of error in the result appear to have been conducted, or at least recorded, in this country. American results are not altogether reliable here, owing (1) to the difference in the varieties grown, and (2) the difference in the meteorological conditions.

In an attempt this season to ascertain which varieties of Pears were self sterile, and therefore not suitable for large plantings by themselves, I tested the following fifteen varieties :—Bellisime d'Hiver, Beurré d'Amanlis, Beurré Superfin, Catillac, Conference, Doyenné du Comice, Durondeau, Easter Beurré, Emile d'Heyst, Jargonelle, Josephine de Malines, Louise Bonne of Jersey, Pitmaston Duchess, Williams' Bon Chrétien, Olivier de Serres. Of these only two, Conference and Durondeau, set fruit under such conditions that foreign pollen (i.e., pollen of some other var.) was unable to obtain access to the stigmas—i.e., only those two vars. proved self-fertile.

So far the evidence is positive; the evidence with regard to the other thirteen varieties is not conclusive, the weather prevailing at the time possibly interfering with the setting of the fruit. Negative evidence can only be accepted in such cases after a long series of experiments extending over several years with varying climatic conditions. In some cases, although the trees flowered very well, and were growing close to other varieties, only one or two fruits were set, showing that weather conditions interfered greatly with the production of fruit.

Thirteen varieties of Apples were experimented on—Beauty of Kent, Cellini Pippin, Cox's Orange, Claygate Pearmain, Gladstone, Lord Derby, Lady Sudeley, Mannington Pearmain, Northern Greening, Schoolmaster, Stirling Castle, Sandringham, Sturmer Pippin, and here again only two varieties set fruit, under conditions precluding the entrance of foreign pollen—Gladstone and Stirling Castle. Of course, here again, the negative evidence does not conclusively prove that the remaining eleven varieties were self-sterile.

The weather prevailing at the time, high winds and wet, prevented any cross pollination experiments being carried out with accuracy; but it is worth noting that, although the Pear-blossoms are, as a rule, at least, proterogynous, yet it frequently happens that one or two of the anthers have shed their pollen before the bud opens; this fact points to the necessity for special care in the choice of flowers for cross pollination. *F. J. Chittenden.*

China Asters.—Specimens of these plants, showing the symptoms so commonly met with, were referred to Dr. Cooke for report, the supposition being that the condition was due to the Aster-worm, described and figured in the *Gardeners' Chronicle* by Rev. H. Friend, on Aug. 14, 1897. See also *Gard. Chron.*, March 29, 1902.

Spot in Grapes.—From Derby came specimens of Muscats affected with this fungus, now too commonly met with. It is due to a species of Glæosporium, described and figured in the *Gardeners' Chronicle* on December 6, 1890, and in Viala's work on diseases of the Vine. Destruction by fire of the affected berries, so far as possible, and the use of a fungicide spray next season, are the only remedies that can be suggested.

Distorted Apples.—Some distorted fruits were shown, whose small size and crippled appearance were attributed to imperfect fertilisation and a check to growth.

Callas.—Some specimens from Rougham Hall, were exhibited, in which the leaves had failed to expand properly. This was supposed to be due to some arrest of growth, the reason for which could not be ascertained without knowing all the circumstances under which the plants were grown.

Canada Rice.—Mr. Douglas showed a specimen of this annual Canadian grass, whose seeds are used as an article of food. A fine clump may be seen at Kew.

Begonias. — Mr. S. Brown, of Edwinstowe House Gardens, Newark, sent male flowers of tuberous Begonias in which the anthers had been replaced by stigmas, and the upper surfaces of the petals were covered with imperfect ovules. Such changes are common in cultivated Begonias.

Chrysanthemum leucanthemum.—Dr. Masters showed a specimen in which stalked flower-heads proceeded from the axils of the leaves all up the stalk.

Sweet Pea.—The same gentleman showed flowers of Lady Grisel Hamilton from his garden, in which the base of the standard was deeply divided into two rounded lobes; almost all the flowers on the plant were thus affected, and some few on other varieties, so that it seemed as it this formation was, or if selected might be, a precursor of a separate race.

Griselinia littoralis.—Mr. Burbidge sent from Dublin a specimen of this New Zealand shrub, with small, ovoid, berry-like fruits, which are very rarely produced.

Diseased Melons.—In reference to the supposed bacterial disease of Melons referred to at the former meeting, Mr. Willard now sent the following letter, which confirms his original statement :—

"Acting on your suggestion, I have tested inoculation still further. Two plants were selected that had finished their fruit off satisfactorily, and to all appearance were remaining healthy. The first had a hard woody stem; the sap of a diseased plant was introduced by a scratch in the bark, the next day discoloration took place, in three days the disease could be seen, and in a week the plant succumbed. In the case of the other, which was somewhat more succulent, the inoculation was done on Monday morning, and the plant was practically dead on the following Friday, the disease going right through the stem and seemed to cut off the supply of sap from the root. I may add, these two plants had thick, healthy, green leaves, more so than usual for plants that finish their fruit quite up to ripeness. The house has not been shaded, and the plants have had abundance of air during the day with a little left on at night. *J. Willard, Holly Lodge Garden, Highgate, N., September* 22, 1902."

Floral Committee Meeting at Chiswick.

October 1.—A meeting of the Floral Committee was held at the Society's Garden to further inspect Michaelmas Daisies, to correct the nomenclature, and recommend Awards to deserving varieties.

Present : W. Marshall, Esq., in the chair; and Messrs. H. J. Jones, H. B. May, J. Walker, C. Jeffries, G. Reuthe, C. R. Fielder, R. Dean, C. Dixon, and J. Hudson.

Awards of Merit were recommended to :—

Aster Ericoides Ophir.—The habit of this charming seedling, raised in the gardens of the exhibition, greatly resembles that of the type introduced from North America upwards of 140 years ago. The progeny differs from its parent principally by reason of its flowers being delicately suffused with pink, and blossoming a week or so in advance of it; height, 3 feet. From Mr. E. Beckett, gr. to Lord Aldenham, Aldenham House, Elstree.

Aster Ericoides Sensation is another beautiful border plant, raised about the same time and at the same place as the last named. Its habit is very graceful, and the dainty flowers, borne upon long, much-branched panicles, are larger and of a purer white than those of the type; height 3 feet. From Mr. E. Beckett, gr. to Lord Aldenham, Elstree.

Aster Amellus bessarabicus.—A well-known autumn-flowering plant, useful in grouping on the turf and for planting in clumps in front of taller growing subjects in the mixed border. It grows from 18 inches to 2 feet high, is of sturdy branching habit, with a profusion of lilac-purple flowers, larger and paler in colour than those of A. Amellus amelloides.

ENGLISH ARBORICULTURAL IN FRANCE.

Friday, August 22, the last day of the excursion proper, was spent in viewing the palace and park of Compiègne. The palace was built in the reign of Louis XV., and occupies three sides of a large quadrangle. The south side opens on to a terrace decorated with statuary, and large Orange-trees in tubs. The flower garden is not extensive, and the beds are arranged more or less irregularly on each side of the main walk, which runs in the direct line of the long avenue through the park, already alluded to. From the garden, walks covered with trellis work and creepers, such as Clematis, Aristolochia, Vines, &c., lead to the shooting covers, in which President Loubet and his friends indulge in the pleasures of the chase. Compared with an English game-cover, everything here is more or less artificial, and several acres of Privet are kept clipped flat at about 3 feet from the ground, amidst which narrow walks run for the convenience of the sportsmen, who shoot their birds as they rise from the dense mass beneath. Several hundred acres of scattered coppice and woodland, intersected by broad rides and glades, and more in the English style, are also comprised in this park, but there appeared to be a general absence of that combination of pleasure-ground and forest which renders the woodlands of our large English seats so attractive. In fact, one of the most striking features of the excursion, in our opinion at least, was the almost entire absence of exotic trees, Conifers especially, throughout the district visited. Commercially, perhaps, they are not wanted, but on æsthetic grounds their existence, when judiciously planted, would add greatly to the attractiveness of the vast forests which occupy so much of the country, and which serve the purpose of open spaces and recreation-grounds for the general public.

The excursionists having to leave in the afternoon for Paris, a return was made about midday to head-quarters, where an opportunity was afforded of cordially thanking the French forest officers, who for the last two days had acted as guides through their magnificent tract of woodland, comprising as it does in all about 100,000 acres. We had been favoured by good weather, excellent arrangements, and a most cordial reception on the part of the officials of the Forest Department, the two last being greatly due to Professor Fisher, who spared no pains to ensure the success of the gathering. The value of these excursions to practical foresters cannot be over-estimated. They afford an opportunity of seeing the effects of soil and climate on tree growth generally, and of obtaining useful hints with regard to various methods and customs peculiar to different districts. But of greater importance still, is the social intercourse between followers of the same profession (which, like gardening, compels practical isolation from workers in other parts of the country), which such gatherings permit, and which rub off a great deal of prejudice and provincialism which is apt to gather round most of us if not disturbed occasionally. *A. C. F.*

Obituary.

Mr. Joshua Le Cornu, Highview Nurseries, Jersey, died of apoplexy on Sept. 27, 1902, aged 72 years. He had been in the nursery trade over half a century, but practically retired some two years ago, when he sold his business to his son, Mr. Phillip Le Cornu.

ANSWERS TO CORRESPONDENTS.

Anemone japonica : *Rus in urbe.* The greater length of stem made by this plant at Tunbridge Wells than in another district is doubtless owing to the conditions of soil and atmosphere being more favourable in the former place.

A Pergola : *Hudson.* An Italian word for a walk bounded on either hand by wooden or stone pillars, carrying transverse straight horizontal spars, and connected longitudinally likewise in the same manner. These pillars and spars support Grape-vines in Italy, where frost is seldom so severe as to kill to the ground or snow line, as is the case in parts of France, Germany, Austria, Hungary, and Servia. In this country Vines bearing edible Grapes are not grown much out of doors, the fruit not ripening, except on hot walls, but other species of Vines, for the sake of fine foliage effects, are frequently planted; Prairie and Rambling Roses in great variety, Aristolochia Sipho, Ampelopsis, Clematis, especially

strong-growing species as flammula; Bignonia radicans, Wistaria, Akebia, Passiflora cærulea, Hedera, Jasminum, Lonicera, Humulus, Periploca, &c. In Italy and other sunny climes the use of a pergola is to afford a partially shaded, cool retreat in the heat of the day, not so thickly overgrown as to cause gloom. Tall hedges of Cypress are grown for the same purpose.

ASTER NOBLE AND DIANTHUS PLUMARIUS SEMPERFLORENS FL.-PL.: *F. Rœmer.* Owing to much travelling backwards and forwards, the flowers arrived in a condition which admitted of no opinion being formed of them.

BIENNIALS, PERENNIALS, AND ANNUALS: *J. F.* Consult some good catalogue, and make your choice.

BOOKS: *Land Surveying, H. Smith.* You will be enabled to get the kind of book desired of Mr. Upcott Gill, 170, Strand, London, W.C.

BORDEAUX MIXTURE: *E. P. & Co.* Dissolve 6 lbs. of sulphate of copper in 16 gallons of water. In another vessel slake 4 lbs. of fresh lime in 6 gallons of water. When the latter mixture has cooled, pour it slowly into the copper solution, care being taken to mix the fluids thoroughly by constant stirring. Prepare some days before use. Stir the liquid before applying it for downy mildew, blight, and rot of Potatos, Tomatos, blight of fruits, and many other fungus diseases of plants. Only vessels of wood may be used for holding the mixture. If the mixture is not washed off the fruits by the rains, add 1 quart of strong cider to 5 gallons of water and dip the Grapes or allow them to remain in it for a few minutes, then rinse once or twice. The Grapes should be placed in a wire basket for dipping.

BUNCHES OF GRAPES AND BERRIES OF A SMALL SIZE: *X. Y. Z.* We should suppose that the condition of the border (an inside one) is at fault, probably excessively dry, or its manurial properties are exhausted. We would advise an examination of the border this autumn to be made, and if it is as we suspect, a new border may be a necessity.

CANTALOUP MELON: *J. H. B.* The botanist's description "Vegetable Fruit" is accurate; still, Melons are not culinary fruits as are the Vegetable-Marrows, Cucumbers, Gourds, Aubergines, &c., and a Melon may be quite properly classed as a dessert fruit. We do not know anyone who makes a practice of consuming Cantaloup Melons as culinary vegetables, although they would doubtless be as palatable as Vegetable-Marrows.

CHRYSANTHEMUM LEAVES: *T. H.* We have not discovered any disease upon the leaves. The injury is more likely to be caused by overfeeding, or other cultural defect.

CHURCH FONT: *F. L.* Dahlias, excepting those of the single-flowered varieties, do not form the best sort of flowers for decorative purposes, unless secured to stout wires, so as to keep the flowers erect, or nearly so. The Chrysanthemums would answer better. If you could make a convex cover of wire-netting of small meshes, and stick the flowers therein in a light, graceful manner, and with stalks of various lengths, and not indulge in a large admixture of species and colours, the effect would be better than when moss is used as the supporting medium. Asparagus plumosus, or perfectly green shoots of the common Asparagus, grass awns, strong-growing Adiantums, or other Ferns, should be used as foils to the colours of the flowers. Clematis, small-leaved Ivy, Ficus ripens, or other small-growing trailers might be used on the margin, allowing them to partially hide the sides of the font.

CRATÆGUS PYRACANTHA LELANDI: *A. B.* The injury is caused by Fusicladium dendriticum, a fungus very injurious to the foliage and fruit of all fruit-trees. Thorough spraying with Bordeaux Mixture both now and next spring will arrest the spread of the fungus. Be careful to clear away and burn fallen diseased leaves. *G. M.*

CUCUMBER AND TOMATO: *W. W. W., Lee.* Eelworms on the roots. Clear out soil and plants, and char both, or bury them 2 feet deep in the ground.

DOUBLE-FLOWERED PINK RUBUS: *A. H.* The definition is not enough. Please say which species is meant, and then we may be enabled to reply to your query. Double flowers are not in all cases incapable of bearing fruits.

FERNS: *W. M.* The specimens of Ferns you send differ from the types in the characters you mention. Cultivate them, and see whether the variation is fixed or not.

GRAPES: *Mona's Isle.* Both varieties have "shanked," and there are evidences of injury to the skins by thrip or other small insect.—*Ignorant.* There is nothing in the berries themselves to account for the condition of the Grapes. We suspect the cultivation afforded the Vines, leaves something to be desired.

HEATING FOR A SMALL GREENHOUSE: *Z.* Scan our advertisement columns, or apply to a good ironmonger. The "Beatrice" oil stove would not answer your purpose. A copper pipe apparatus heated by an oil lamp, and the whole so constructed that the fumes of combustion are not allowed to enter the greenhouse, would be the best.

NAMES OF FRUITS, ETC.: *We are desirous to oblige our correspondents as far as we can, but the task is becoming too costly and too time-consuming for us to continue it without some restrictions. Correspondents should observe the rule that* **not more than six varieties** *be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. The fruits should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.*—*J. H. H.* 1, Beurré d'Amanlis Pear; 2, Belgian Purple, and, 3, Jefferson Plums.—*G. J.* Catshead Apple.—*J. Pitts.* Apples: 13, very small Emperor Alexander; 14, Egremont Russet (good); 18, very small, not recognised; 19, very small, Annie Elizabeth; 20 and 21, very small, not recognised. The fruits were but very little larger than Crabs.—*Interested Reader.* Pears: 1, Beurré Rance; 2, Gratioli of Jersey; 3, Beurré de Capiaumont; 4, Marie Louise; 5, Pitmaston Duchess; 6, Beurré Baltet père.—*T. E. Stamper.* Badly-grown fruit, not recognised.—*F. S., Nantwich.* 1, Lady Sudeley, and 2, Bess Pool.—*Tokay.* 1, White Muscadine; 2, a Frontignan, probably; 3, White Nice? berries all decaying; 4, Scotch White Cluster (syn. Diamant); 5, Appley Towers; 6, Lady Hutt. It is always advisable to send a whole bunch, not a few berries, as the form of bunch is a great aid in identifying some varieties.—*J. F.* 1, poor specimen, not recognised; 2, Mr. Gladstone; 3, Duchess of Oldenburg; 4, Poor fruit, not recognised; 5, Lord Derby; 6, Alfriston; 7, Lady Sudeley; 8, Peasgood's Nonsuch; 9, King of the Pippins; 10, too small to be characteristic; 11, Golden Noble.—*N. G.* 1, Golden Russet; 2, Scarlet Golden Pippin; 3, Tower of Glamis; 4, Yorkshire Beauty or Red Hawthornden; 5, not recognised; 6, Prince Bismarck; 7, Tower of Glamis. *W. E. B.* 1, Josephine de Malines; 2, not recognised; 3, Louise Bonne of Jersey; 5, Pitmaston Duchess; 6, Black Worcester; 7, Beurré Superfin; 8, Beurré Bachelier.—*Queenstown.* 1, Beurré Diel; 2, Duchess d'Angoulême; 3, Beurré d'Amanlis; 4, Beurré Baltet père; 5, Beurré Hardy; 6, Brockworth Park.—*Q. P.* 1 and 6, send better specimens; 2, Rosemary Russet; 3, Blenheim Orange; 4, Old Nonpareil; 5, not recognised.—*Liberator.* Apparently a small fruit of Dumelow's Seedling.—*S. F. L.* Appley Towers Grape.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. J. S.* 1, Catalpa bignonioides; 2, perhaps the Deodar; 3, Cratægus crus-galli; 4, Cupressus (Retinospora) pisifera.—*J. Friend.* Cratægus tanacetifolia.—*R. B., Sandleford.* Henbane, Hyoscyamus niger.—*A. Myhill.* 1, Viburnum Opulus in fruit; 2, not recognised, the specimen a poor one; 3, Aster lynosyris, a British plant; 4, Fuchsia gracilis; 5, Silene vespertina.

NECTARINE SPLIT: *Bucks.* A common occurrence to which some varieties are more prone than others—the Stanwick, to wit. It is caused usually by much rain and humid atmosphere. Plums suffer similarly.

PINKS, CARNATIONS, PICOTEES: *J. Ball.* The first named are derived from Dianthus plumarius. This species crosses lightly with Dianthus arenarius, and in a lesser degree with D. superbus, D. sinensis, D. armerius, D. barbatus, and D. caucasicus; and the hybrid between D. arenarius and D. plumarius, again cross readily with D. caryophyllus. And by crosses made in this direction, many of our garden Pinks have been obtained. The direct cross of D. plumarius and D. caryophyllus is not successful. Carnations (D. caryophyllus), when fertilised with their own pollen, show abundant variation, and crossed with each other they give numerous varieties. Picotees differ from Carnations in having a ground colour and an edging of a second colour; which last is used by florists to separate the varieties into divisions, having heavy purple edges, heavy red edges, heavy rose edges, and light edges of these three colours, besides yellow ground vars. There should be no flakes, stripes, or bizarres, among Picotees. All Carnations, Picotees, and pinks, are hardy where local conditions are not unfavourable, but the air of large towns does not suit any but the more robust. Clove Carnations do not seem to suffer so much as others. Bizarres, flames, flakes, &c., indicate the markings of Carnations; and border Carnations are so called because they may not in certain points come up to exhibition standard. It is a purely arbitrary distinction, a "border" Carnation being as beautiful as any of the florist's type, excepting in the eyes of the florist. We should advise you with regard to other matters to obtain a catalogue of Carnations, &c., from a specialist and read it attentively, for we have much exceeded the space allowed for replies in this column.

THE LOSS OF THE BLOSSOMS OF NERIUM OLEANDER: *E. M. K.* This mishap is due to lack of solar heat this year. The new wood is likely to be immature from the same cause.

TOMATO LEAVES: *Yours truly.* Exceedingly bad and withered specimens. The fungus is that of Cladosporium fulvum, which was illustrated and described in the *Gardeners' Chronicle*, October 29, 1887.

TOMATO ROOTS DISEASED: *Nursery Foreman.* The roots sent are infested with eelworms, for which there has been no cure known in this country. See answers in *Gard. Chron.* in regard to Tomatos, Cucumbers, Melons, &c., in recent issues of the *Gardeners' Chronicle*, and read "American Notes" in present issue.

COMMUNICATIONS RECEIVED.—G. Brook — C. Hart—F. W. B.—Mrs. K. W.—J. E. D.—Leaver, Norwood.—Geo. Cocker.—C. W.—L. S T.—A Reader.—A. W. T.—A. A.—Hillingdon.—Constant Reader.—T. W. C.—Geo. Doolan.—W. S., Wemyss.—S. C.—G. J., Lincs.—R. M.—T. A. (we do not possess the address required).—W. J. L.—J. L.—de B. C.—R. A. H —Anxious One.—C. O.—H. W. W.—E. J. L.—C. R. Fielder.—W. S.—E. S. G. B.—W. E. W.—H.M —D. S. T. F. J. C.—Dr. C. B. P.—A. Harrison.—B. W.—J. D. G.—T. L. I.—K. & B.—Rus in Urbe.—W. R.

DIED.—Heer JOSEPH LOOYMANS, nurseryman, Oudenbosch, Holland, in the seventy-first year of his age.

(*For Markets and Weather, see p. x.*)

THE
Gardeners' Chronicle
No. 824.—*SATURDAY, OCT.* 11, 1902.

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SALTWOOD.

[Supplementary Illustration]

THOSE who only know the bleak Kentish coast in early spring, and have a recollection of what the east wind is—say, at Folkestone in an average March, will have some difficulty in realising that, within a few miles of the just-mentioned town, there are spots which have a climate that would do no discredit to the Isle of Wight. Even in the lower Sandgate Road at Folkestone, except when a sou'-wester blows, the air is mild and balmy throughout the greater part of the year.

At Sandgate, close by, the so-called Arum Lily (Richardia æthiopica) and the fragrant Aponogeton distachyum, flower freely in ponds in the open air; whilst Eucalyptus Globulus only fears winters of more than ordinary severity. Another mile or so to the west, close to Hythe, itself a warm spot, is Saltwood, a charming little village nestling in the hills a mile or two from the sea. Here is an old castle where, tradition says, the murderers of Becket slept the night before they executed their fell purpose in Canterbury Cathedral.

The gateway as it now exists dates from after Becket's time, and is singularly like, but less imposing than, the fine Westgate at Canterbury. Our business, however, lies with a "chine" hard by, a chine which recalls those in the Isle of Wight, though the sides of this one are clothed with trees—trees native, and trees planted. A valley runs between the banks, a valley cut out of the greensand which is here overlain by alluvial soil, a valley almost always moist and warm, sheltered from every wind that blows, and safely harbouring a variety of trees and shrubs which one might expect to see in Devonshire, but hardly on the Kentish coast.

Our supplementary illustrations show a bush of Spiræa ariæfolia in full bloom, and a red-flowered Camellia smothered in bloom. For the photographs from which these are taken we are indebted to Mr. Leney, the present proprietor of the "American garden," as it is called hereabouts, from the profusion of Rhododendrons which have been planted here at one time and another. These are not mere low-growing bushes, but good-sized trees, and when covered with bloom, as they were when we saw them at the end of May, presented a most brilliant spectacle. The varieties are many of them old friends, but since the garden has come into the possession of its present owner, many new and improved varieties have been added. This remark applies not only to the shrubs, but to herbaceous, bulbous, and other plants, so that this garden will soon become, if indeed it has not already become, one of rare beauty, and what is still more satisfying, one of exceptional interest.

Among the more showy Rhododendrons in bloom at the time of our visit were, Cynthia, with large trusses of deep rose-spotted flowers; Old Port, whose rich colour is indicated by its name; Blandyanum, a fine tree whose beauty, when covered with its rosy-crimson spotted flowers was positively startling; Victoria was another variety with claret coloured spotted flowers; another was Princess Mary, with flowers of a deep lilac colour, the tube being white. Huge bushes of veteran white Azaleas, are growing side by side, or in proximity to groups of some of the newer varieties of the Mollis section.

Illicium anisatum, a handsome evergreen, was in full bloom, as were also big bushes of Fuchsias, Magnolia Halleana, a fine specimen of Choisya ternata, and one of Olearia Gunniana. Exochorda grandiflora was covered with its snowy-white flowers that have some special attraction for the Saltwood sparrows, as mischievous as those of other localities. Ilex latifolia is represented by a specimen of large size and noble foliage.

Among the Conifers the most remarkable for size and stateliness is a tree of Cupressus macrocarpa, one of the largest, if not the largest of its kind it has ever been our lot to see. We saw no cones upon it, so that the identification is uncertain. Cunninghamia sinensis is interesting, but it is not quite happy; it looks as if spring frosts may have checked its growth. Araucaria imbricata also did not seem quite at home, but Sequoias (Wellingtonias), Lawson's Cypress, Red Cedar, Cupressus Corneyana, and many others, were thriving apace. Bamboos and Palms (Trachycarpus excelsus), Tree Pæonies, and Lilies, including L. giganteum, New Zealand Flax, and Australian Eucalyptus, together with others too numerous to mention, as the guide-books say, add to the attractions of this very interesting garden. It is a garden that we have known for many years. It had fallen somewhat into decay; thinning had been neglected, and some of the shrubs had arrived at a stage of decrepit senility. Since it has passed into the hands of Mr. Leney a great change for the better has set in. Fortunately, the owner is a plant-lover, and appreciates the capabilities of the site, so that constant additions of interesting and beautiful plants are being made to replace the veterans, and afford additional interest to what was always an attractive garden.

MARKET GARDENING.

ABOUT CUCUMBERS.

UNDER the above-named heading, Mr. J. Lowrie (p. 222) has given to the readers of the *Gardeners' Chronicle* a somewhat, not to say very, remarkable exposition of his views regarding the cultivation of Cucumbers for market. The article is not only remarkable by reason of the totally wrong inferences drawn on certain phases of the plants' growth, but especially on account of the want of practical knowledge displayed by the writer concerning the special cultural requirements and treatment of the Cucumber-plant during its whol period of growth, as well as his lack of knowledge of the means employed by skilful market growers to extract from the plants, in ten or twelve weeks from the time they come into bearing, all the fruit that healthy, vigorous Cucumber-plants are capable of producing under favourable conditions within as many months in private gardens, in which the object of the cultivator generally is to produce and maintain a good regular supply of first-rate Cucumbers from the same plants for as long a time as possible. The market-grower, on the contrary, takes all the fruits it is possible for the plants to yield under favourable conditions as regards culture in two or three months.

Mr. J. Lowrie says, in the beginning of the third paragraph of his article: "I must say that if the Cucumber plant really requires the treatment it generally receives at the hands of market-gardeners, then it must be one of the most extraordinary plants on the face of the earth;" adding, "I cannot imagine the requirements of any cultivated plant to include the stewing and drenching process the Cucumber is usually submitted to." And he goes on to say that, "as a rule, houses in which the plants are grown and fruited are 'steamed up' or 'damped down' a stated number of times per diem, regardless (?) of the outside weather conditions, and the plants receive a soaking at the roots at equally regular intervals, with a supreme indifference as to whether they require it or not (?), until the soil becomes sour and sodden;" adding "in addition to the above, that syringing is frequently resorted to, and the walls are kept running with moisture and the paths flooded." Continuing his onslaught on market growers, Mr. Lowrie remarks, "Under the above conditions (conditions which he appears to me to have himself created), it is to me a marvel how any cultivator can expect anything but premature decay in the plant, and consequent vexatious loss."

In saying that the Cucumber plant "must be the most extraordinary on the face of the earth," Mr. Lowrie is quite correct without being aware of the fact, seeing that from scarcely any other cultivated plant can such a weight of produce or anything approaching thereto be

taken in so short a space of time as that extracted from a given number of Cucumber plants by skilful market growers throughout the country. And in order to do this, plenty of heat and moisture judiciously applied are necessary to maintain the plants in a vigorous, healthy, and fruitful state from first to last. But to say that moisture is distributed indiscriminately in the Cucumber-houses at stated intervals per diem, "regardless of external weather conditions, and that the plants are soaked at the roots at equally regular intervals of time with supreme indifference as to whether they require it or not," is opposed to common sense and all facts connected with successful Cucumber growing for market, and otherwise; and is an unjustifiable and totally uncalled for imputation on a large body of skilful, intelligent, and hard-working Cucumber growers for market.

Perhaps it may surprise Mr. Lowrie to learn that all successful growers of Cucumbers set their plants out on very shallow and narrow ridges (some on "hillocks"), adding top-dressings of a suitable compost thereto as the roots begin to push through the surface, this being a sign of healthy root growth, and not, as Mr. Lowrie would have us believe, an indication "that all is not right beneath the surface;" these top dressings being repeated as often as the young roots appear, up to within two or three weeks of the plants being "relegated to the rubbish-heap," after all that it was possible to take out of the plants in the way of good saleable fruit is extracted therefrom. The result of repeated top-dressings is that a mass of hungry roots are thereby secured, the soil becoming a veritable network of healthy roots.

I can assure Mr. Lowrie that it is quite natural and consistent with healthy root-action for the roots of Cucumber or Melon-plants planted in a suitable soil, and subjected to skilful treatment as regards water and atmospheric temperatures, to push through the surface of the soil, and the sooner a surface-dressing of light rich mould is laid on them the better, the roots being attracted to the surface by reason of the moist rooting medium having become warmed on the surface by the combined action of sun and artificial heat. Is it necessary for me to inform Mr. Lowrie that plants grown as indicated, that is, on ridges crammed full of healthy roots, with abundance of healthy foliage overhead, and heavy crops of fruit in various stages of growth depending from the plants, require liberal and frequent supplies of water at the root during a week? The number of times that the plants are afforded water during a week depends largely upon the sort of weather prevailing at the time; and the same remark applies equally to the number of times per day the houses are damped down, not "flooded." In the concluding paragraph of Mr. Lowrie's letter, readers of the *Gardeners' Chronicle* are informed that the Cucumber is not an aquatic, and are asked, "Why in the name of wonder treat it as such?" adding, "that when planted in the open, no attempt is ever made to deluge it with water in fair weather and in foul;" and he concludes the first instalment of his smart, but highly misleading and indefinite article with the words, "and yet the plant bears abundantly crops of the best quality and size, which are considered by not a few of superior flavour to those grown under glass (?)"; but your correspondent has not informed his readers the conditions under which Cucumber plants yield such satisfactory results out-of-doors. Perhaps Mr. Lowrie's next article will indicate a definite method of procedure for the benefit of market growers based on sound, practical lines. If so, Cucumber growers for market will overlook the undeserved things which he has said about them in his first edition. There is a growing number of recruits in the army of market gardeners who require sound, practical instruction imparted to them regularly, in and out of season. *W.*

FIG. 86.—ASTER NOVI-BELGII, VAR. FLORIBUNDUS, AS GROWING IN A POT.
(Colour of the flowers deep purple.)

PERENNIAL ASTERS IN POTS.

Now that the Michaelmas Daisies which constitute the principal floral display in many gardens have improved in condition at the same time, the more tender out-of-door flowers have become less brilliant, the illustrations in figs. 86, 87, showing the effect of the cultivation of these plants in pots may be interesting. The photographs show two plants grown by Mr. H. J. Jones, Ryecroft Nurseries, Lewisham, who it may be remembered exhibited a collection in pots at a meeting of the Royal Horticultural Society last year.

The pot-grown plants were all grown from single stems, most of them having been grown from cuttings taken early in the year. As a rule those plants flowered rather earlier than others in the open ground, but as all were cultivated in the open air, the earlier flowering would doubtless be due to the limitations of root run imposed by the pots. The best varieties for pot culture belong mostly to the Nova Angliæ and Novi-Belgii groups, those of the latter type affording greater variety, and maintaining a longer succession of bloom than those of any other. Cuttings or offshoots should be taken off early in spring, and they will make large plants by the autumn. Pots of not less size than 8 inches in diameter are necessary, and if convenient larger ones may be used advantageously.

The chief cultural necessity for pot-grown plants is a liberal supply of water. The plants should never be permitted to become dry at the roots, especially after the flower-buds have set, and if manure-water be afforded occasionally, the result will be still more satisfactory. It will be obvious that plants grown in this manner may be used for the decoration of large rooms, halls, &c., and will last longer than would be the case if cut flowers were employed.

The varieties illustrated are both of the Novi-Belgii group, that in fig. 87, a variety known as Perle Lyonnaise, which forms a dwarf, compact bush, with pure white, medium-sized flowers; and in fig. 86 floribundus, with flowers of deep purple colour.

NEW OR NOTEWORTHY PLANTS.

PLATYOSPRION PLATYCARPUM, *Maxim. Melanges biologiques, Diagn. Plant. nov. Japon. et Mandsh. Decas* 19, p. 659. *Sophora* (Platyosprion) *platycarpa, Maxim., Bull.* xviii., 398.

THIS handsome deciduous tree was collected as long ago as 1864 on Fusi-yama, by Tschonoski, but has apparently only very recently found its way into cultivation. Probably it is rare in its native country, for Shirasawa in his *Iconographie des Essences Forestières du Japon*, does not mention it. In general aspect the species somewhat resembles the old and well-known Sophora japonica, but it differs markedly in its much broader and larger leaflets, and in its larger and more lax inflorescence; the individual flowers too are larger. The calyx is totally different, and the pod unlike that of any member of the genus under which it was first placed by Maximowicz. It was only in the index that the section Platyosprion was raised to generic rank, and so the omission of the latter from the *Index Kewensis* is easily explained. Under the name Sophora platycarpa it is catalogued by Spaeth, Berlin. *Geo. Nicholson.*

ORCHID NOTES AND GLEANINGS.

CYNORCHIS GRANDIFLORA.

THIS rather showy terrestrial Orchid from Madagascar was illustrated in the *Gardeners' Chronicle*, February 18, 1893, p. 197, and has since then been remarked in several gardens. It is a terrestrial species having grass-like leaves, and an erect flower-scape bearing one quaintly-formed, attractive flower. The flower-stem, bract, ovary, and sepals, are greenish, spotted and marked with purple. The white petals arrange themselves closely under the upper sepal; and the broad four-lobed lip is white at the base, and of a dark rose-purple tint on the disc and lobes. A singular feature in the flower is the thick spur 2 inches long, and enlarged at the point, which for two-thirds of its length follows the line of the ovary, and then curves outwards. A flower of a very showy variety of it, with labellum $1\frac{1}{2}$ inch broad, is sent by the Hon. Walter Rothschild, M.P., Tring Park.

AN ABNORMAL CYPRIPEDIUM × CONCO-CALLOSUM.

A singular peloric form of Cypripedium × conco-callosum is kindly sent by Captain G. W. Law-Schofield, New-Hall-Hey, Rawtenstall, Manchester (gr., Mr. Shill), who, as his many friends will be glad to learn, has so far recovered from his recent illness as to be enabled to take an active interest in his plants again. The flower is yellowish-white, tinged with rose on the upper sepal and the front of the lip. It is perfect so far as the upper and lower sepals and lip are concerned, but the petals are transformed into two supernumerary labellums, each furnished with a pouch as in the regular labellum, the opening in the pouch of each being pressed against the side of the central lip, and all three of them are arranged side by side. Hybrids seem to give a large proportion of these monstrosities, the dissimilarity between the parents, and their varied habits being probably accountable for this.

STENOGLOTTIS LONGIFOLIA, &c.

South African terrestrial Orchids have not the best of characters in gardens for being manageable plants, still, when the wants of many of them are understood by the cultivator they can be successfully cultivated with but little difficulty. One of the best examples is Stenoglottis longifolia, a Natal species, which thrives in most gardens. In Mrs. Brightwen's interesting garden, at The Grove, Stanmore, are several fine examples growing in a cool intermediate-house. These plants vary much in size, and in the form and colour of the flowers. One variety is of a light pink colour, spotted with purple; and the other has a blush ground colour, spotted with dark rose. This form has very large flowers, and there are at the present time more than 100 of them expanded on the same spike. Mr. J. W. Odell grows it and the other terrestrials of its class in sandy peat, and a little sphagnum-moss. Disas, and especially D. uniflora, grow well here, one plant of D. sagittalis having been in the gardens for many years. These plants are wintered on a greenhouse shelf, and placed in a cold frame in summer.

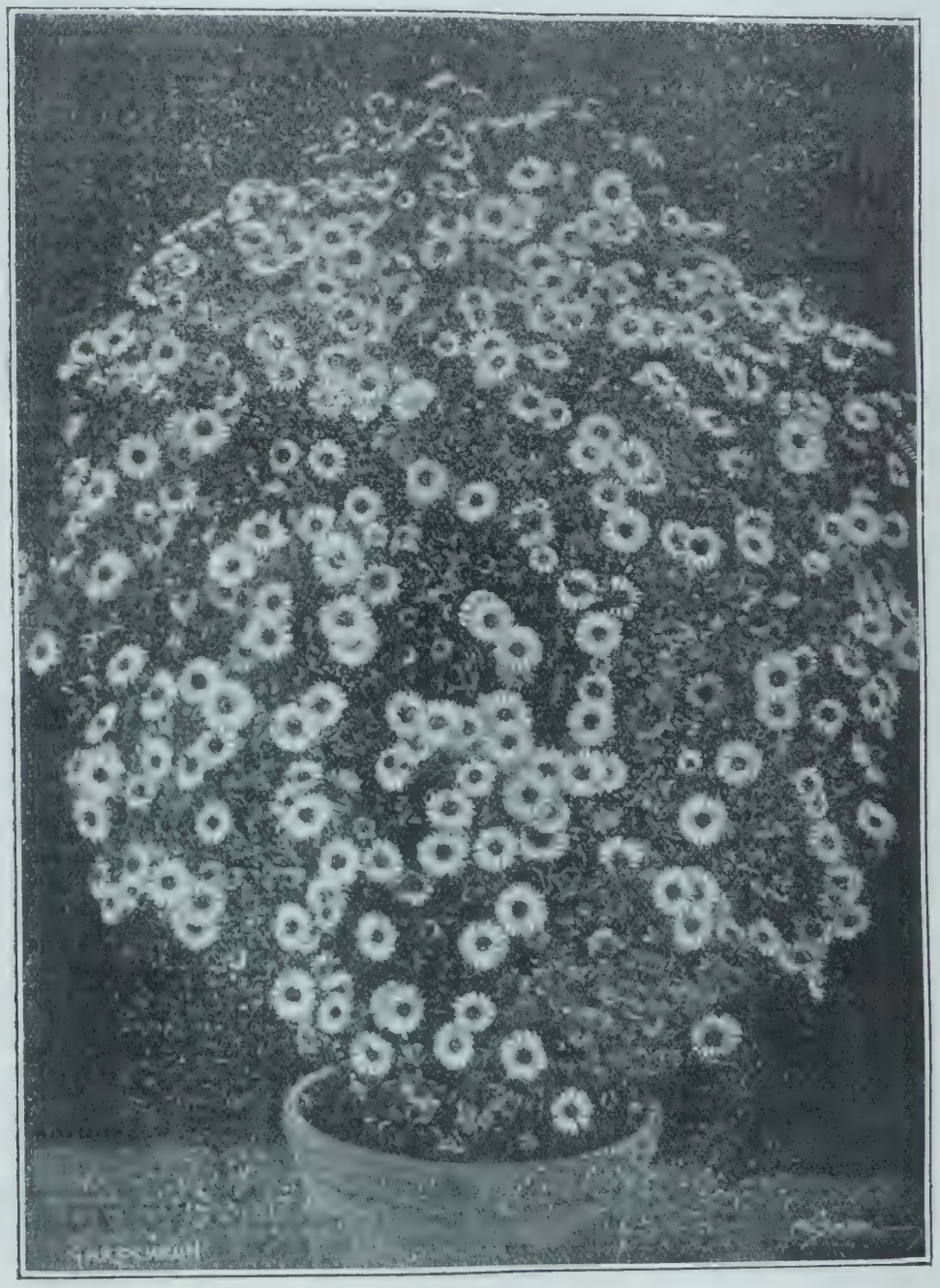

FIG. 87.—ASTER NOVI-BELGII, VAR. PERLE LYONNAISE. (SEE P. 258.)
(Colour of the flowers pure white.)

ODONTOGLOSSUM GRANDE "MONKHOLME VARIETY."

Flowers of this very handsome variety of the favourite Odontoglossum grande are kindly sent by Robert Tunstall, Esq., Monkholme, Brierfield, Burnley (gr., Mr. Balmforth). The variety is of that class sometimes occurring in yellow and brown-flowered Orchids, and in which the brown colour is suppressed, the position of the markings being only indicated by a dark shade of yellow. The process gives the equivalent of the albino in species in which all colour in the sepals and petals is suppressed, and the white ground colour remains. The flowers of O. grande "Monkholme Variety" are nearly 4 ins. across, the sepals greenish-yellow, and the petals lemon-yellow, both bearing darker yellow markings where the brown appeared in the typical form. Lip white, with chrome-yellow spots; callus blotched with bright orange.

THE BLUE COLOUR IN HYDRANGEAS.

SOON after its introduction by Sir J. Banks from China and Japan in 1790, it was noticed that some plants of Hydrangea Hortensia produced blue flowers, and of course an explanation was at once required. Almost the first reason given was that of the presence of salt or saltpetre in the soil; this was followed by the oxide of iron theory, and that the loam of some districts enjoyed this indefinable property of producing the blue colour; then it was surely peat, turf ashes, and particularly the ashes of the Norway Spruce had a turn; applying alum water during the previous year also had a vogue. But to establish either of these theories one vital point was lacking—

their applications did not "fix" the blue colour. Latterly, in our own days of exact science, botanical and horticultural authorities have become more cautious, and have chiefly confined themselves to saying by what artificial means this blue colour may be produced. And, in fact, the almost universally adopted theory is that it is "something" in the soil.

Quite recently I read in a contemporary of a gardener seriously advancing as proof of this iron in the soil theory, the fact of numbers of bushes growing in the open air producing blue flowers, while plants raised from them and grown under glass only bore pink flowers because there was no iron in the soil in which the pot plant was growing! But by potting some plants in the soil from around one of the blue-flowered Hydrangeas, how easily he could have proved or disproved his theory.

For my own part, I do not believe that in the generality of cases the nature of the soil has anything to do with this blue colour. In these gardens there are growing some enormous bushes which freely produce pink, blue, and white flowers on the same plant, and frequently on the same branch—very erratic proceedings when viewed from the "iron in the soil" standpoint.

In my opinion, it is above and not below that we must look for a cause which will satisfactorily explain this phenomenon of blue Hydrangea flowers. To me it seems to be a question of light, for I have particularly noted that those flowers which open earliest in the season, and consequently when the sunlight is strongest, are always of the normal pink colour; while those, on the same plant, which expand later are usually blue. And I have found, not only here but elsewhere, that the shrubs growing in shady positions, and facing north-west or due north (in which positions the amount of sunlight must of necessity be small, and the period of flowering late), produce a far greater proportion of blue flowers. It must be borne in mind that the corymbs which appeared first are now, by reason of their weight, hanging down, and in many cases mixed up with the later ones. *A. C. Bartlett, Pencarrow, Bodmin.*

"THE THEORY OF MUTATION."*

(*Concluded from p.* 244.)

ON p. 460 the author gives the following *résumé*:—

ORIGIN OF NEW SPECIES.

A. With the formation of new characters. Progressive formation of species.
B. Without the formation of new characters.
  B_1. Through existing characters becoming latent. Retrogressive formation of species, partly atavism.
  B_2. Through latent characters becoming active. "Degressive" formation of species.
    a. By taxinomic (or latent) abnormalities.
    b. As atavism pure and simple.
  B_3. By hybrids.

Progress in plant life depends necessarily upon advance, and in the formation of new characters; the dominating wealth of forms, however, depends besides upon the opportune disappearance of characters already existent, and the resuscitation of latent ones (Retrogression, Degression, Atavism (p. 463).

In this review, entire sections must remain untouched upon or only briefly mentioned. The reviewer hopes, however, that the significance of the book has been made clear to the reader; he does not consider it necessary to point out inequalities in the book which, moreover, could hardly be avoided in the publication of such an extensive work in so brief a time, and in part may be imputed to the method of its issue. Nor will he criticise the work in detail, merely remarking that the rarity of sports appears to him to be a weak point, which together with their almost invariably reduced fertility would render the supplanting of the old forms by the new ones, an extremely slow process, which in its turn would employ a long duration of the mutation periods.*

In point of fact, De Vries in fifteen years only found a few "sports," induced in his garden in his station for Œnothera Lamarckiana, although many hundreds of plants developed annually, and the sports in the garden constituted about 1·5 per cent. Furthermore, the extension of the experiences gained with Œnothera to all polymorphic sections, especially to Hieraciums, appears to the writer to be rash. The writer assumes that here hybridisation has apparently obliterated the boundary lines of the elementary species; this, however, is opposed to the observation of others. Fundamentally the point here is the extent of the stride effected by a sport. It appears as a spring when it exceeds the limits prescribed for fluctuating variation; that, however, is by no means always the case, as De Vries himself allows, though his transgressive variation is based thereon. There must be a limit, below which the single steps are practically indistinguishable.

Finally, a remark made not alone by the reviewer. In the entire volume, the name of Naegeli only figures once; on p. 355 he is mentioned, together with Elias Fries in discussing the groups of closely allied species, as one of the older systematists (aelterer systematiker). Other authors suffer a like fate. Otherwise the opinion of contemporaries are taken well into account, even those of *dii minores et minimi-nomina sunt odiosa*. Furthermore, the author's opinions coincide largely with those of Naegeli, especially as regards the sharp discrimination of individual, non-transmissible variations from transmissible ones (the difficulty still lies, in the writer's opinion, in the inheritability, and not in the extent of the variational spring or sport), the influence of selection which merely weeds out, but yields nothing new, the *rôle* of hybridisation, the social origin of new species, the difference between race and variety (elementary species of De Vries), the disturbance of equilibrium of the characters, and the relation of patent and latent ones determining the development of the races, and the increase of the sums of the characters than of the varieties, &c. The *per saltum* appearance of new characters has never been disputed by Naegeli; he discussed also the "premutation periods" of De Vries. These are opinions based not only on observations in the open, but also upon thousands of cultural trials with Hieracium. Differences naturally exist. In the first place, De Vries distinguishes himself by the absolute repudiation of the Lamarckian principle, and the denial of any determinate direction of mutation. (The objections raised by De Vries on the latter point in reply to Mr. B. Scott are not quite convincing to the writer.) These shortenings are to be regretted in the interest of so fine a book, but not in the interest of Naegeli, since the laborious thought embodied in his comprehensive work will sooner or later reassert its value.

In the address given in Hamburg, the "biochronic equation" is again brought forward. The duration of life of a species is the period between two mutation periods. Thus multiplying the average life L by the number M of progenitors of any given existing species, the product is obviously equal to the duration of the entire biological period ($B P$). The number of the progenitors is, however, taken generally equal to the number of mutation periods, as above stated. We have, therefore, the following equation—

$$M \times L = B P$$

or the number of mutation periods (M) on a given progenitorial line, multiplied by the average duration of their intervals = the whole biological epoch. As a first rough approximation, De Vries finds that if $B P$ be taken as = Lord Kelvin's estimate of twenty-four million years and M = 6000, the average duration of the intervals, the life period of the species is 4000 years.

Heterogenesis and Evolution. Contribution to the theory of the Origin of Species. S. Korschinsky, *Bot. Zeit.*, No. 1, January, 1902, p. 1. Abstract from *Flora*, vol. 86, pp. 240 to 363, by C. Correns. The author has taken great trouble, by the study of wild forms of plants alone, to trace the development of species; he found, however, that his object could not thereby be attained, and consequently took up, instead, the study of the origin of new forms under cultivation, with the result that the accumulation of individual varieties did not, as Darwin assumed, lead to the desired end, but that the new varieties invariably arose as sudden *per saltum* deviations from the true species, as solitary individuals, differing in one or more decided typical characters, such individuals being at once more or less constant through their seed. This process of formation the author terms heterogenesis, following Kölliker, with his "heterogeneous generation."

The first section of the treatise is devoted to the characteristic of heterogenesis. The reviewer does not know whether the author was able to complete, before his death, the second part, dealing with the *rôle* of heterogenesis in the origin of (spontaneous) species. The particular difficulties had first to be considered, and Korschinsky had himself made no observations. In the first place, the author collects all that he could find recorded as regards the occurrence of new forms of cultivated plants; he arranged this matter according to the points in which the change occurs, variation of habit, stems, crown, form of leaf, &c., and from this material, most industriously collected, he draws his conclusions. Next, heterogenesis is discussed as it is defined above, the difference between it and individual variations, and the multiformity seen in the highest progeny, the rarity of heterogenesis, the influence of environment thereupon, which Korschinsky considers as trifling (it merely predisposes) its direction, both in the sense of phylogenetic progress and phylogenetic retrogression, its inheritability, which according to Korschinsky is not complete even in the most stable examples; and finally, the causes which assist the energy of variation to overcome that of inheritance. The changes themselves should occur during the fertilisation in the seed-vessels, but the causes themselves remain utterly incomprehensible.

Though the absence of a second part and the appearance of De Vries' *Theory of Mutation*, which is based upon personal observation of a vast amount of material, handicaps Korschinsky's work to some extent, yet thanks are due to *Flora* for rendering it available, by translation from the Russian, and publication. *C. Correns.*

* By H. de Vries. Reviewed by C. Correns, *Bot. Zeit.*, No. 1, January, 1902, pp. 3—9.

* Assuming that at one station where annually 10,000 individuals of a monocarp species could bear fruit, 1 per cent. of the individuals sported annually, that the sports should be at once constant in their seed, and enjoy the same chances of self maintenance as the individuals of the parental type, and that finally crossing should be entirely excluded, then there would result:—

	Of the Parental Type.	Of the Sports.
After the 1st Generation ...	9900 ...	100
2nd ,, ...	9801 ...	199
3rd ,, ...	9703 ...	297
10th ,, ...	9044 ...	956
20th ,, ...	8179 ...	1821
30th ,, ...	7415 ...	2585
69th ,, ...	5000 ...	5000
100th ,, ...	3660 ...	6340
232nd ,, ...	1000 ...	9000
459th ,, ...	100 ...	9900
500th ,, ...	68 ...	9932
848th ,, ...	2 ...	9998
917th ,, ...	1 ...	9999

It would therefore take more than 900 years before the original type was reduced to a single individual.

If we indicate the original number of the parental type by A, the percentage of annual sports as a decimal fraction by a, the number of generations during which the sports originate by n, and the balance of unchanged individuals of the parental type by B, we arrive (on the above basis), at—

$$B = A\left(1 - a\right)^{n.}$$

or—

$$n = \frac{\log. B - \log. A}{\log. (1 - a)}$$

In the above example, the date given by De Vries' observations on Œnothera as regards the sports, are favourably chosen. For complicated relations, the best comparison is to be made with Naegeli (*Bot. Mittheilungen*, iii., p. 205), and Delbœuf (*Kosmus*, vol. ii., p. 105).

CULTURAL MEMORANDA.

TROPÆOLUM TRICOLORUM & AZUREUM.

The first-named creeper is sometimes met with making a good display in the greenhouse during early spring, and I know of nothing more showy when well cared for. It is seen to the best advantage when trained up bits of fine twine to within 18 inches of the roof, in which position the plant makes a fine display during the months of March and April. As the plant is very liable to be infested with red-spider in such a position, the foliage must be syringed daily, putting a small quantity of soft-soap into the water once a week. During the season of growth the tiny shoots require almost daily attention, or they will become matted in a way that makes disentanglement impossible. T. azureum is a lovely thing, seldom seen in perfection, but which will well repay the grower for his attention. Not being as strong a grower as T. tricolorum, a few branching twigs about 2 feet high stuck in at the side of the pot form ample support. Our stock of this plant has been resting since the end of May, by which time growth ought to be well ripened, but the plants were shaken out recently, and repotted—that is, before growth began anew; as any neglect in this respect cripples the shoots, which do not recover during the season. The plant should be potted in very light, sandy loam, leaf-mould, and a small portion of peat. Weak manure-water may be afforded the plant once in ten days, when the growth is well advanced, and the pots are filling with roots. Large or small 32's may be made use of, putting one tuber in the small, and three in the larger-sized pots. Keep the tubers perfectly dry when at rest, but during active growth afford abundance of water.

PRIMULA OBCONICA.

Notwithstanding the irritating effects of the leaves of this plant upon the skin of some persons, it is a good decorative subject for the cool greenhouse from the end of September till late in the spring, in fact it is nearly always in flower if plants are kept after their second year. But as it comes pretty true from seed, very few rely on two-year-old plants, moreover seedlings grow away more kindly if treated aright in the early stages. Some gardeners sow seed in September, and prick out the seedlings into boxes, and pot them early in the year; but I find that good plants can be obtained in October by sowing seeds in the first week in March, pricking off the plants into pans or boxes when fit. The soil should be a fairly light, rich one, and the pans, &c., kept well up to the glass, and being lightly shaded from the too ardent sun's rays during the middle hours of the day. When fit, shift into 60's, and the same sort of soil, and for the summer months place them in a cold frame or pit, and syringe them twice a day, in order to check the increase of thrips, which soon spoil the foliage if allowed to remain on it. The flower-spikes must be removed from the plants till the end of the month of August, and weak manure-water applied once a week, and sometimes clear soot-water which imparts a deep green colour to the leaves. Early in October place the plants on a shelf in an airy greenhouse, where the sun's-rays can reach them. In Devonshire and Cornwall the plant is hardy, and flowers throughout the summer if afforded a half shady, fairly moist place. Seedlings vary in a small degree, some having fringed flowers; and the variety P. o. purpurea is a decided gain as regards the colour of the flowers. *J. M. B.*

VIBURNUM CARLESII.*

This is a Chinese species described by Mr. Hemsley, and of which a photograph has been supplied to us by Messrs. Bœhmer & Co., of Yokohama (fig. 88). It is a shrub more or less covered with grey down, and with oval serrate leaves, with prominent nervation. The white fragrant flowers grow in terminal clusters, and are of a decorative character.

A. Unger, proprietor of the firm of Mr. L. Bœhmer of Yokohama, furnished the following particulars, together with the photograph: "This is a comparatively new, or at least very little known plant, which I received about five years ago from the Corea. I grew it at first in a pot, and had it during the winter in a greenhouse; but it did not succeed, until I heard from the friend through whom I received the plant that it was perfectly hardy, and that I should cultivate it out-of-doors. I acted accordingly, and since that time the plant has grown beautifully, and blossomed the first spring afterwards. I omitted then to cut and press some of the flowers for identification, but only wrote a description of the flower, which I sent to Kew, together with some leaves; the reply was that they thought the plant in question was Viburnum Carlesii, but could not tell me for certain without seeing some flowers. Last year I sent the flowers, and received then the reply that it was Viburnum Carlesii. In the autumn of last year I sent a small plant to Kew, together with a shipment of various articles which were ordered from my firm. The shrub flowered this spring (1902) so beautifully that I had a few branches cut, and had the photograph taken, which I send you. The colour of the flower is at first a pinkish-white, which turns to pure white when fully open, and resembles very much a Viburnum Tinus or a Bouvardia. It has a delicious perfume. The shrub flowers at Yokohama in the early spring, together with Magnolias, Pyrus, Cydonia, &c., and it is my belief that it is just as hardy as are these in England, and that it will form a valuable addition to European gardens."

Fig. 88.—VIBURNUM CARLESII.
(Flowers white and fragrant.)

* *Viburnum Carlesii*, Hemsley, in *Journal of the Linnean Society*, xxiii., p. 350.

THE FERNERY.

BRITISH AND EXOTIC FERNS.

(*Concluded from p.* 219.)

In the Polypodium family, likewise a large one, there are many fine forms which, allied with the many types of P. vulgare, would be very handsome, as evidenced by P. Schneideri. In the Polystichums, also, there are many exotics which are evidently very closely akin to our native species, P. lonchitis, P. aculeatum, and P. angulare; and as most of the very finest plumose forms of the latter bear spores, there is ample material to work upon. In that beautiful lucent-fronded evergreen P. setosum alone there is an invaluable subject for hybridisation. Our Blechnum spicant is

another species which has varied considerably on pretty lines, and has numerous foreign relatives which have not done so, and yet might be induced to do under persuasion of marriage; while the Lastreas or Nephrodiums, though apt to be apogamic—i.e., to produce young by mere asexual budding from the prothallus—have yielded in all native species plenty of good forms, although the exotics, with the exception of N. molle, have done but little in that way. Osmunda regalis has given both crested and fine-cut types probably capable of introduction into the several exotic species, since they are certainly closely allied. All these possibilities being assumed, the next question, and a vital one, is—How are they to be attacked? and this is a very simple matter.

The crossing of Ferns, unfortunately, cannot as yet be systematically done, as with flowers, owing to the microscopic nature of the reproductive process; but numerous successful attempts prove that if the spores of the two parental forms be sown together in one pan, there is the chance of the antherozoids or fertilising organisms of one prothallus being conveyed either by water or insect agency to another, and thus effecting a cross. Hence success would doubtless crown the efforts of the Fern spore sower who, when sowing his exotics, persistently scattered the spores of likely British partners, on the lines above indicated, among those of the exotic. Or, in view of the fact that spores vary considerably in the time occupied in producing the prothallus, and eventually the Fern proper, he might soon separately and subsequently associate by pricking out patches of each and replanting in very close juxtaposition. This we believe was the way P. Schneideri was obtained. On the other hand, there is considerable range of time between the maturing of Fern prothalli, even in the same sowing, so that success might well be obtained in the simpler way of sowing together. In any case, nothing is lost by the attempt, since with judicious selection of good forms a crop of the parental types is obtained, and is worth having, even if the wished-for conjunction fails. *Chas. T. Druery, F.L.S., V.M.H.*

ALPINE GARDEN.

POTENTILLA LANUGINOSA.

THERE are many most beautiful plants for the adornment of the alpine garden among the Potentillas or Cinquefoils. The foliage of the greater number is attractive in form, while the flowers, as a rule, are of great beauty. They are very various also in their habit of growth, so that a good collection of species would be a very desirable and attractive feature in any garden.

Among the prettiest of the shrubby or subshrubby species one would be inclined to place the little-known Potentilla lanuginosa, which is very pleasing both in and out of bloom. It appears to be a scarce plant, and I do not observe any description of it in any of the many valuable books of reference now at hand, but my plant came from a good source, and I anticipate that it is correctly named. At any rate, it is not P. verna, which is Boulay's P. lanuginosa. The only other one in the *Index Kewensis* under this name is P. lanuginosa, *Fisch. & Sweet, ex Steud. Nom.*, ed. II., ii., 388.

The plant grown here is a very pretty one, which has greyish, or in dry weather silvery foliage of much beauty, both from its form and from the silky appearance it presents. The clear yellow flowers are rather larger than a shilling, and are produced from June onwards. In habit Potentilla lanuginosa is rather decumbent, and here has never been higher than nine inches above the earth; it loses its leaves in winter, but the stems are of a shrubby character. It appears to be perfectly hardy, but it is not a plant which blooms until it has been established for a year or two. I grow it in light, sandy soil on rockwork, facing almost due south. It is propagated by cuttings. *S. A.*

NURSERY NOTES.

MR. H. A. TRACY.

AT the Orchid and Lily nurseries of Mr. H. A. Tracy, Amyand Park Road, Twickenham, the large numbers of Lilies grown there, both outdoors and in pots under glass, have been and still are very fine. Both indoors and out there are a good lot of that showiest of all Japanese Lilies—L. auratum rubro-vittatum in bloom, and other scarce varieties of L. auratum and other Lilies are to be seen. For pot-work the best varieties of L. speciosum are mainly used, and two houses of them are kept full by succession throughout the season. Some of the single bulbs in large 48-size pots have given two and three stems, bearing together from twenty to thirty-six flowers. The largest batches are of the bright crimson L. speciosum Melpomene, and the pure white L. s. album novum.

It is noteworthy that a fresh compost for these florists' Lilies in pots has been used with marked success. The bulbs are sent from Japan in cases, and packed closely together in a yellowish sandy earth. Of this sandy Japanese earth Mr. Tracy had a small heap, and he added to it an equal quantity of road-sand—road sweepings of the district, and into that the bulbs were potted. They grew more vigorously even than formerly, and there was an entire absence of failure of some of the stems when growth was nearly completed in the manner well known to Lily-growers.

MESSRS. CHARLESWORTH & CO.

The Orchid nursery at Heaton, Bradford, is one of the most remarkable, complete, and successful horticultural concerns of modern times, and one in which the ideas and methods have been worked out with care, observation, and experiment, by Mr. J. Charlesworth himself. On several occasions we have noted the remarkable vigour and general excellence of the stock of imported species, and of hybrids, the outcome of the larger part of the efforts at Heaton; and of late it has been stated that a great deal of the success is due to use of leaves in a decaying state in the potting material, together with a prescribed method of using it. The question now being one of great importance, we paid a visit to the establishment, and full particulars respecting the potting material, and matters relating to it, were kindly given, which we hope to recount in a special note on the subject shortly. For the present it will suffice to give a brief notice of a few of the matters we noted there.

Although importing Orchids, and especially Odontoglossums, through their own collectors, is was easy to see that the great and increasing industry of raising new Orchids from cross-fertilised seeds is the more important branch of the business. To what amazing proportions this part of the nursery has arrived is apparent in the record-book of the crosses made, which we had the privilege of inspecting. The last entry was numbered 3748; every number between the unit and the higher number being filled in. All the crosses did not succeed, and a proportion of those which grew were not as desired, but even the failures tell of an enormous amount of care and attention. On the other hand, some crosses of which little was expected have turned out well, and so, as usual, the skill and patience of the operator have been rewarded. What will be done with the stock of fine crosses still in the seedling stage in a few years it is difficult to imagine, for already the large block of houses, nearly as large as the original nursery, erected to take the overflow about three years ago, is now so largely stocked as to render further extension very necessary.

A very noticeable feature is that throughout the plant-houses their occupants, both species or hybrids, are in vigorous health; hard, clean, firmly rooted, and flowering, or in a condition to flower, even in the smaller sizes, which would scarcely be expected to flower. One explanation of the healthy character of the foliage and the abundant flowers, is that they are grown rather cooler and with more air than in other Orchid nurseries, and sunlight is freely admitted, indeed this season but little use, it is said, has been made of the lath-roller blinds.

At the entrance of the nursery, new offices have been erected, together with an artist's room, and other conveniences for taking pictures of good things, and recording them as they flower. Several of the first of the long houses are devoted to the cultivation of Odontoglossums and other cool-house plants. Odontoglossum crispum and its fine spotted varieties are the favourites, and several houses are filled with them. Oak-leaves are used in a manner we hope shortly to describe as an ingredient in the compost in which these, and practically all the Orchids in the place are grown. That the treatment pursued is correct is shown by the fine condition of the thousands of plants of Odontoglossum crispum ranging from the recently imported arrivals, planted out in beds on the staging, to the large established specimens. With the O. crispum some good forms of white and spotted varieties were in flower; also the singular and pretty O. Hennisii, of which this is the only plant that has been imported; O. tripudians, O. Œrstedi, the pretty orange-scarlet O. retusum, and a few other species.

Noteworthy as growing in these cool houses are fine batches of Oncidium varicosum, O. tigrinum, O. Forbesii, O. Gardneri, O. spilopterum, O. Marshallianum, and others of that section in robust condition, and flowering profusely; also Cymbidium tigrinum, Oncidium macranthum, Odontoglossum Edwardi, O. coronarium, and O. cirrosum, all growing very strongly, and showing well for flower.

The next house was a large one filled with Cattleyas, a few being in flower; also Oncidium ornithorhynchum album, and O. incurvum album, in bloom. The opposite house is the one in which the seeding experiments were first projected, which now contains a fine collection of the rarer species and hybrids of Cypripediums, including C. Charlesworthi album, C. bellatulum album, C. Godefroyæ leucochilum, C. callosum Sanderæ, C. Lawrenceanum Hyeanum, and some nice plants of C. × Maudiæ, a rival to both the last-named.

A houseful of hybrid Cattleyas, Lælias, and Lælio-Cattleyas, with a selection of albinos, of species such as Cattleya Luddemanniana alba, C. Trianæi alba, several C. Gaskelliana alba, and C. Wageneri come next. Some were in bloom, as also Lælio-Cattleya × Galatea, L.-C. × Violetta, and others; and a good specimen of Colax jugosus with dissimilar flowers on the same spike, one being blotched with purple, and the other having ocellate

spots of a rose tint. In the next house a good batch of Miltonia vexillaria of all the best kinds was noted. These plants, as most growers have found, grow better in tree-leaves than in peat and moss. A number of showy plants in flower, consisting of Lælia pumila præstans, and some hybrids, were suspended near the glass; and on the stages stood a batch of Cochlioda Noezliana, another of the orange-scarlet, autumn-flowering Epidendrum vitellinum; the pretty Lycaste hybrida, and other pretty Orchids were in bloom.

The adjoining house contained a large number of Aërides, Vandas, Saccolabiums, Angræcums, &c., in splendid condition. These also have a proportion of Oak-leaves in the compost. A vigorous lot of plants of Vanda cœrulea seemed to take to the leaves.

The range succeeding this one contains a number of Cypripedium × Leeanum Albertianum, a fine lot of Oncidium splendidum, a large number of Cattleya Dowiana aurea, with a strong specimen of the richly-coloured natural hybrid C. Dowiana Rosita, varieties of C. Eldorado; Oncidium Lanceanum, growing well; a number of good plants of Catasetum Bungerothi, C. splendens, and C. macrocarpum, some of them in flower; one of the last named being a very finely-coloured form with dark ruby-red lip. The end lobby had a good show of flowers of Dendrobium Phalænopsis Schroderianum, D. formosum giganteum, &c.; and on one side a case of Anæctochilus, and Goodyeras; and Habenaria Elliotti, with the central leaves white; a singular Cymbidium from Java, and a few other pretty botanical species.

A collection of Bulbophyllums, Cirrhopetalums, Masdevallias, Restrepias, &c., contained many species in flower, and among specially good things in flower noted were a fine lot of Odontoglossum grande, including one of a clear yellow tint; O. grande aureum, Cypripedium × Shillianum, C. × A. de Lairesse, a fine lot of C. Charlesworthi, C. × Lawrebel, a row of Promenæa stapelioides and P. xanthina, &c.

The new houses form a conveniently arranged group, in which the now general plan of having a close moisture-holding lower stage, and above it an open-work stage, upon which to stand the plants is followed. The rarer hybrids, in many cases, are raised still higher on pots. The contents of the houses are graded, those nearest the entrance consisting of the smaller stock brought over from the main establishment, and so on, each succeeding house having larger plants, and the last one the largest flowering specimens. So far as health and perfect condition goes, when one house is inspected the state of the whole may be appreciated, for the stock throughout is in uniformly fine condition, and this remark applies to the quality of the flowers. Bad or weedy things do not appear, for although "misses" will happen and undesirable hybrids will flower, they are burned as soon as they are observed.

The first house was filled with unproved new Lælias, Cattleyas, and Lælio-Cattleyas. The second with thousands of plants within a year or two of the flowering stage, and in which Cattleya Dowiana aurea has formed one of the parents, every available good plant obtainable being used for the other. Another house contains chiefly hybrids, in the production of which Lælia Digbyana has been used; yet another has quantities of hybrids of Lælia flava, and an equally large number of crosses between Sophronitis grandiflora and the showy Cattleyas and Lælias. So rapidly do some of the crosses develop, that we were shown a number of promising hybrid Cattleyas, Lælias, &c., in sheath, proved by the stock-book and label to be but from four years and four months to five years from the date of sowing.

The house has a batch of Lælia × Coronet (cinnabarina × harpophylla), singularly like L. harpophylla in flower, but much larger; a fine lot of the showy Lælio-Cattleya × Charlesworthi (C. aurea × L. cinnabarina), of remarkable vigour and beauty; and in most of the houses were good shows of bloom, the most beautiful of those noted being some handsome varieties of the beautiful Cattleya × Iris (bicolor × aurea), a hybrid which has already had three of its members certificated, which should be a sufficient recommendation; two handsome and delicately tinted L.-C. × Gottoiana, a small lot of Sophro-Cattleya × Nydia, Sophro-Lælia × Eros, and S.-L. × Gratrixiæ, all hybrids of Sophronitis grandiflora, and bearing some fine scarlet and reddish-claret flowers of various tints; Cattleya × Germania (Schofieldiana × aurea), Lælio-Cattleya × luminosa, L.-C. × Haroldiana, plants in flower of the pretty Cattleya × Adolphus, very variable, but always attractive; and many others.

A rather warm house at the corner has a small lot of healthy Phalænopsis, a collection of the finest yellow forms of Cypripedium insigne, and seedlings of many kinds, in which C. callosum Sanderæ and C. Lawrenceanum Hyeanum have been used.

The whole place is admirably heated by two Rochford boilers, which can be worked together or separately.

PLANT NOTES.

CRINUM × SIR TREVOR LAWRENCE: C. MACOWANI (Baker) × C. LONGIFOLIUM (Thunb.).*

This very fine and useful hybrid Crinum resembles both the parents equally, but shows perhaps more of the characteristics of the former parent, and grows extraordinarily robustly; it flowers all the summer, as it seems, and will become in time a favourite with the florists. It grows with me in the open ground all the year round, and is never protected. I think this hybrid is finer than the old C. Powelli, and certainly it is as hardy. *Ch. Sprenger, Naples.*

Crinum × Belladonna (*C. longifolium, Thunb.*, × *pratense*).†

It flowered first in the summer of 1901 in my garden here, and one bulb produced that first summer six flower-stems before September. The flower much resembles that of Amaryllis Belladonna, is very widely opened, and with a red or pink base; it will become a very useful pot-plant, and certainly will be hardy in England, as are its parents. It stands out with me all the year in the open ground, and is evergreen. Altogether a fine garden plant, worth cultivating also for furnishing flowers for cutting. *Ch. Sprenger, Naples.*

* Bulb very large, heavy, globose, with a long neck. Leaves about ten to fourteen to a bulb, widely spreading, lobate, scabrous, glaucous, and somewhat caudiculate. Peduncle about 2½ feet long, purplish-green, somewhat glaucous, cylindrical, not compressed. Flowers eleven to fourteen in an umbel; spathe-valves large, oblong; pedicels unequal. Perianth with a large curved olive-coloured tube, and a large, well-opened, funnel-shaped limb, with oblong, broad, and elegant segments, pure white, the outer surface rose-red; very fragrant; pink; stamens declinate, shorter than the limb, rose-red; anthers ash-coloured; style bright purple, very short, and stunted, quite sterile.

† Bulb firm, small, ovoid, with a short, cylindrical neck. Leaves eight to ten to a bulb, linear, suberect, 1 to 1½ ft. long, undulate, canaliculate, acute, and light green. Peduncle cylindrical, not compressed, 1 to 1½ ft. long. Flowers eight to twelve in an umbel; spathe-valves broad at the base, lanceolate, pedicels short. Perianth-tube curved, brownish-green; segments pink, later rose, oblanceolate, acute, nearly as long as the tube. Filaments white, shorter than the segments. Style as long as the stamens, but sometimes much shorter, incurved and degenerated, purple; sterile.

LILIUM SPECIOSUM AND ITS VARIETIES.

After reading Mr. Mallett's reply to Mr. Barr, I am bound to admit that I do not consider he has proved his case, and in particular that part of it stating that "the garden forms of L. speciosum are a great advance on the old types imported from Japan twenty years ago." It is significant, moreover, that Mr. Mallett does not inform the readers of the *Gardeners' Chronicle*, for whose especial benefit the Lily notes in question were first written, what these inferior types are, and by what names they were distributed on arrival in this country. So far as my knowledge of Japanese speciosum is concerned, there is not the least difference to-day as compared with twenty years ago. Indeed, so far as the "types" have anything to do with the question, and in so far as the Japanese were concerned, the types were two, and two only, viz., "album" and "rubrum," the latter were in greater variety than the former.

As a matter of fact, we have nothing to-day superior in Lilium speciosum than was known and catalogued upwards of twenty years ago. At that time such things as rubrum, cruentum, and Melpomene, were all included in the "rubrums," and were well known to Lily specialists, and equally the fine white, known here as Krætzeri. More rare than this last, just as it is more rare to-day, and has been through all the intervening years, is that superb white variety album novum, but even this came in the consignments of "album" more than twenty years ago. Very naturally its superiority was not overlooked, and I know of one large collection whose every plant was quickly marked as it came into bloom; in fact, I have been pleased myself to mark this variety, and I have not lost the trick of so doing even to-day. The first large lot of album novum I became acquainted with, I saw in full flower in the late Mr. Wilson's Weybridge garden in September, 1880. Judged by the exceptional growth and development, for they were nearly 6 feet high, the plants were of two years' growth at the least, and the bed consisted of some two to three dozen bulbs.

At Hampton, newly-planted speciosums attain a height of 4 feet or 5 feet only in the second year after planting, and that with the largest bulbs; and I could easily account for the superior growth cited of Mr. Wilson's plants by a knowledge of his special fondness for Lilies and the endeavour he made to grow them to the highest degree of perfection. In view of these facts, it seems to me that Mr. Mallett is going out of his way by his censures on the Japanese article, and I doubt if any difference has existed in respect to the quality. That the Japanese have long ago separated the varieties themselves is probably as much due to the widely-read *Gardeners' Chronicle*, as it is to the shrewdness of the Japanese themselves, for most of the varieties have been discussed in the columns of the *Gardeners' Chronicle* in past years. In this particular, indeed, special mention can be made of "album novum," when some years ago (I think about the year 1887 or 1888), an attempt was made to re-name it "album verum." As the plant was already catalogued under the former distinctive name, I championed its cause, and the latter name was hardly heard of again.

It is quite probable that the discussion that was carried on in the pages of the *Gardeners' Chronicle* at the time concerning this fine white Lily, was not lost upon the Japanese Lily-growers, some of whom during recent years have sent it over in separate consignments.

At the same time, it is by no means plentiful, nor is any consignment of "album" as imported quite free from it. Not only is it in every way superior in the flower, but it is even superior as it is distinct in its leafage and the general character of the growth from any other white speciosum. *E. H. Jenkins, Hampton Hill.*

MITES ATTACKING BEGONIAS.

ON May 17 there appeared in the *Gardeners' Chronicle* a note from the Editor, enquiring whether the statement of a correspondent to the effect that "there is a fungus which attacks Begonia Gloire de Lorraine, denuding entire batches of their leaves," could be corroborated. At that time, and for some months previously, I had been observing with the aid of a microscope, the depredations committed upon Begonias, and many other hot-house plants by exceedingly minute parasites.

Each year there are numerous instances of batches of Gloire de Lorraine and other Begonias assuming a rusty and crippled appearance, as though attacked by a fungus, and entirely refusing to grow. But in each case the injury is due to insect agency, and not a fungoid nature.

Like most gardeners, I first became acquainted with the rust on tuberous-rooted Begonias about twelve or fifteen years ago, and the fact that it could always be kept down by tobacco-powder led me from the first to suspect that the injury was the work of an insect, but it is only within the last twelve months that I have had an opportunity of determining the question, when, by subjecting affected plants to an examination under a powerful microscope, the presence of exceedingly minute insects and their eggs was detected. Unfortunately, the attacks of these mites are not confined to the Begonia race, as they cripple many stove and greenhouse plants. In most cases they infest the extreme points of the shoots of the plants, including the very centre of the growing buds; and they are the cause of the rusty and crippled appearance which is sometimes seen in such plants as Gesneras, Gloxinias, Achimenes, Ruellias, Russellias, Cyrtodeiras, and in the racemes of Thyrsacanthus rutilans whenever traces of thrips or red-spider cannot be seen. In cooler temperatures it entirely ruins the blooms of Gerbera and the growing shoots of Crassula (Kalosanthes), whilst the rough-leaved section of Bouvardias, such as Priory Beauty, President Cleveland, &c., together with Streptocarpus and Cyclamen, are much injured by it. Finally, it is the cause of the yellow or dirty green colour which is sometimes seen in the growing tips of Melon shoots.

I have only recorded that which I have seen and proved; but I do not by any means suggest that the above list includes all the plants that are subject to the attacks of this pest; in fact, I know there are others, and I would suggest that in cases of injury to hot-house plants, which cannot be distinctly attributed to the attacks of thrips or red spider, the presence of this invisible mite should be suspected. I have myself adopted this plan with success.

As to the species of insect, the cause of all this trouble, I do not know its name, but if the tip of an infested shoot be brushed with a fine camel-hair brush over a clean sheet of glass, it is just possible for anyone with very keen eyesight to observe the insects slowly moving. Measured by the micrometer, that which I take to be the female, is about an eighth thousandth part of an inch in length; the male is somewhat smaller. When examined under the microscope, the insects are seen to possess a shiny and almost transparent body, with a milky coloured spot on the back. They have six legs. The male has appendages at the posterior end, which resemble an additional pair of legs. With these appendages, I have seen the male insect carrying the eggs, and at other times carrying the females. The eggs are beautiful little objects, oval in shape, and regularly marked with circular white spots to the number of about twenty-three on that portion of the egg which is towards the eye.

My notes seem to show that the insect breeds less freely in the winter, for on Jan. 19 I saw only a male and a female insect and one egg on a plant that had been isolated for observation; on February 9 no eggs. February 23, insects and eggs; March 4, numerous insects and eggs; and April 13, insects and eggs were very numerous.

I find that the insects can be destroyed by dusting the infested shoots with tobacco-powder, and I have no doubt that tobacco-water is equally efficient in the case of plants which are not too large to be dipped. Mr. Fyfe, of Lockinge Gardens, told me that he keeps his Begonias clean by syringing them with clean water, and I can believe that this is possible in the case of such smooth-leaved plants as Begonias Gloire de Lorraine and Gloire de Sceaux. *C. R. Fielder.*

[On September 14, 1895, p. 304, a correspondent in the *Gardeners' Chronicle*, stated that he had found "rust" in Begonias, to be due to the attack of minute insects. Then on November 9, 1895, p. 544, "W. W., Kew," confirmed "W. K.'s" opinion, and at some length described the effects the mites wrought upon Gloxinias, Achimenes, Pentas, Vincas, and Begonias, gave directions for preventing the same, and stated that some "rusty" Begonias were submitted to Mr. Massee, the eminent fungologist, and he had reported, "The disease is caused primarily by very minute white insects and Saprophytic fungi, such as Botrytis heterosporium, &c., soon follow. Keep down the insects and the disease will disappear." Then on November 16, p. 586, appeared a further confirmation from Mr. A. D. Michael, an authority on the Acarinæ, who stated that the mite was a species of Tarsonymus, and gave particulars of where the best figures of Tarsonymi are to be found. ED.]

The Week's Work.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Epidendrum ciliare.—Many plants will at this season be sufficiently advanced in growth to permit of repotting or surfacing being carried out on those that require either. Being a deep rooting plant, pots should be used rather than pans. The potting should be done firmly in a mixture of equal quantities of the fibre of peat and chopped sphagnum, and one-fifth of the whole of leaf-mould, keeping the base of the plant rather below the rim of the pot, clumps of sphagnum-heads being inserted on the surface. A favourable position is one close to the light in an intermediate-house. When making roots freely a fair amount of water is required, and at other seasons very little suffices.

Brassavola Digbyana. — Plants that have fully developed their new growth should be permitted a decided rest in a house somewhat cooler than the Cattleya-house, in which they have been growing. It is essential that light and sunshine may freely reach them, and only sufficient water should be afforded as will keep the pseudo-bulbs plump. Thus may the plants remain quite dormant until spring.

Cattleya labiata autumnalis.—This variety affords one of the principal displays obtained from Cattleyas, and at a season when there is little that is bright out-of-doors. The flowers are in course of development, and the new pseudo-bulbs should be secured to stakes in such a position that the flowers will be seen to the best advantage. Afford sufficient water at the root so as to keep the pseudo-bulbs plump during the flowering season, and maintain a sweet and buoyant atmosphere during dull days and cold nights. But little damping should be done, or the flowers will become spotted. When the flowering season is past, the plants should be permitted a rest, consequently very much less water should be afforded them.

Lælia pumila and its varieties præstans and Dayana, now present a fine show of flower in the cool intermediate-house. When the flowering stage is past, the plants for some time will be completing the new pseudo-bulbs, and will require water during the process.

Cattleya aurea and Cattleya gigas.—These two species and the charming natural hybrid from them, viz., C. Hardyana, require great care during the winter in order to keep them in health. Even at this season there may be some in a condition to allow of repotting or resurfacing being carried out if required, but on no account disturb any plant unless the new roots are visible at the base of the new pseudo-bulbs. From now until spring, water will require to be afforded with great discretion. Very little will suffice to keep the plants perfectly plump during the winter months, and that is all that is needed.

Oncidium varicosum Rogersii, and O. Forbesii. Secure flower-spikes to neat stakes. Plants suspended from the roof should be lowered before the flowers expand, the extremes of temperatures close to the glass affecting them injuriously. Afford sufficient water to keep the pseudo-bulbs perfectly plump during the flowering period. The strength of the plant, and the size of the spikes, should be the grower's guide as to how long the spikes may remain upon the plant without unduly weakening it.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Asparagus.—Take advantage of fine weather to put the beds in good order. Finish clearing off the top growths, hand-weeding the ground, and gathering up ripe seed-berries which may have dropped. When affording a top-dressing of rotten manure, which is an advantage to all bearing beds, judgment should be exercised as to the method of applying it; for instance, beds which have had the alleys squared up and the soil thrown on to the beds in the usual manner, should have the dung applied with an idea of removing it early in the spring, so as to permit the solar rays to impart warmth to the ground and hasten growth. On the other hand, when Asparagus is grown on the flat, with the crowns near to the ground-level, an annual dressing of short manure, prepared as for making a Mushroom-bed, should be applied, and covered with good rich soil. For this purpose roadside trimmings which have been in a heap for a year or two, Vine-border or other border soil which has been stacked, answer well, or it may be taken direct from the border. Young beds, after being hand-weeded, provided the land is not cold or heavy, may receive a dressing of agricultural salt at the rate of 1 cwt. to every 6 or 8 square poles.

Seakale.—Clear off the leaves as they die down, and in the case of the plants intended for the first forced batch, remove the leaves as soon as the stalk parts easily from the crown, and by this means induce immediate rest in the plants, the time fast approaching when forcing must begin.

Cabbage.—The plants in the older plantation should be cleared of decaying leaves, and the ground freed from weeds, the larger by hand, and the ground hoed, the small weeds being got together with a small rake. The "greens" or immature Cabbages formed on the stumps furnish a supply after the Beans and Vegetable-Marrows have ceased to bear, being preferred by many to Savoys and Brussels Sprouts at this part of the season. Young plants may still be set out without loss of time. Examine daily those already planted for grubs, and replace those which have been eaten off. Prick out the strongest Red Cabbage plants from the seed-bed on to a bed or an open piece of ground, and thus check growth; and if those in the bed are still crowded, thin them somewhat.

Cauliflowers.—Autumn Giant which is affording a supply should be examined daily, turning down the leaves over the more forward heads as a protection against frost; and in the event of very cold threatening, dig up all the plants that have visible heads, and lay them in rather close together on the north side of a wall, and protect with mats, &c. As the weather gets colder the plants may be laid-in in turfen pits, cold frames, &c.

Salad.—Hasten the growth of Radishes sown in garden frames standing on spent hotbeds by keeping the lights over them, and afford tepid water when the soil is getting dry. Mustard and Cress should be sown in boxes and put into a warm house, sowing weekly or more often. A first batch of Chicory may now be taken up, the tips cut off all but an inch and placed to the number of three or four in 9-inch pots of soil, placing these in the Potato store or cool dark cellar, or in a Mushroom-house if greater warmth is necessary to force it into growth.

PLANTS UNDER GLASS.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Wintering Bulbs and Tubers.—The successful culture of bulbous and tuberous plants depends largely on the care they are afforded during the dormant periods of their existence, and it will be well to see that each kind is now placed in the position and temperature in which it will winter best. A difficulty arises owing to the congested state of the houses during the early part of the winter, and even where space is ample the unsightly appearance of pots of soil without any apparent life in them, often causes them to be put out of sight in unsuitable quarters. But much of this unsightliness may be avoided by turning the tubers, &c., out of their pots, and packing them thickly in pans filled with silver-sand. Gloxinias, Achimenes, Gesneras, Caladiums, and other stove tubers, may be treated in this manner soon after the top growth has died away. All these, with the exception of Achimenes, if allowed to winter in a temperature much below 60° will probably die, or become so weakened as to be useless. Achimenes and Richardia Elliottiana may be safely placed in an intermediate-house or warm shed; while tuberous Begonias, Oxalis (which should be put where mice cannot reach them), and Cannas may be wintered in any place where frost, damp, or cold draughts will not reach them. Hippeastrums need an intermediate degree of warmth, and should be kept in their pots of soil, and preserved from drip. Lilies of various hardy kinds, such as L. auratum, and those of the speciosum and lancifolium types, may have their stems shortened, and be turned down on their sides in a cold pit, but should be protected from sharp frost.

Richardia æthiopica.—Those plants which are intended to flower about Christmastide should be removed at once from cold frames to a light and airy house, which may be given after a week or two an intermediate temperature. Afford the plants very little water until they have filled the soil with roots, but afterwards they will need a plenteous supply and liquid manure. Plants to flower at Easter may be kept in cold frames a little longer, but they should be protected at night against frost.

Pentas carnea will require manure-water, in order to encourage successional flower heads. Remove those heads that are spent, for they tend to exhaust the plants.

Forcing Bulbs.—The earliest potted Roman Hyacinths and Paper-white Narcissus should be sufficiently rooted to allow them being subjected to heat. Remove them from the bed of ashes, and place them in a frame where they can be lightly shaded during the middle of the day until the new growth has become green; they may then be put into a pit, and afforded a night temperature of 55°, which should be increased after a week or so if the plants are required to flower early. But the best flowers can only be produced by slow growth; and excessive heat frequently arrests growth altogether.

Cyclamen. — Early plants showing flowers may be afforded weak doses of guano-water about once a week to commence with, and should be kept well up to the glass in the fullest light.

THE FLOWER GARDEN.

By R. Davidson, Gardener to Earl Cadogan, Culford Hall, Bury St. Edmunds.

Preparing Rose Beds.—This kind of work should be proceeded with forthwith, and deep cultivation being required by the Rose, trenching the soil is very necessary. If the ground be of a fairly fertile nature let it be dug to the depth of about 2½ feet, and apply a liberal dressing of farmyard-manure deep in the trenches, so that in planting, the roots of the Rose will not come into contact with it; on the other hand, if the staple is poor or thin, a large proportion of the subsoil should be dug out and wheeled away, and a suitable compost substituted. Roses require a well-drained soil, and where it is clayey or very retentive, artificial drainage must be afforded; and rubble drains led to an efficient outlet are better than tiles. Climbing and rambling Roses require a very rich soil, otherwise success is problematical.

The Rock Garden.—There is much work to be done in this part of a garden if the plants are varied and the collection extensive, and the present affords a good time to plant those dwarf perennials that flower throughout the spring and early summer, such as Phloxes, Aubrietias, Alyssum, Primulas, &c.; also Wallflowers, Violas, and Myosotis, and numerous bulbs. The chief point for the gardener to have in his mind is to allot each species a suitable situation in regard to space for extension, sunshine, shade, moisture, drainage, &c. Excepting Violas and Primulas, the plants just named thrive in well exposed spots. The re-arranging of, or making additions to, old rockeries, or the construction of new ones, may be carried out at this season.

THE HARDY FRUIT GARDEN.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, East Budleigh, Devonshire.

The Winter Moth (Cheimatobia brumata).—October is the best month to battle with the female wingless moths which from now until Christmas climb up the stems of our Apple-trees. They deposit their eggs between the bark on the branches, from which caterpillars are hatched out as soon as the warm days of spring are upon us, and they commence to eat the foliage as well as the blossom almost immediately the buds begin to burst. Means should be adopted to prevent the moths ascending the tree, and this may best be done by placing grease-bands tightly around the stems, about 6 inches from the ground. I have used the "Horne" preparation with good effect, and grease-proof paper is supplied with it. On this the grease is smeared with a brush after making the paper secure, and seeing that no passage can be made underneath the paper, which on aged trees means cutting away a little of the rougher bark, so that the paper may fit tightly all around. Standard trees are quickly treated in this way, but when trees are trained to iron or wire fencing, much time is needed, as each iron post or stake must be treated similarly to the tree, and the grease should be renewed from time to time to prevent the substance from getting hard and dry, or it becomes ineffective.

Root-Pruning.—The latter part of the present month and early in November is a very suitable time to perform this work, and trees under the most skilful management may on occasion require to be afforded a check to strong growth in order to induce greater degree of fruitfulness. The result of untoward weather when the trees were in flower is that the trees having no fruit to develop, grow with unusual vigour, or the roots may get into soil that is too rich, or penetrate into a strong subsoil. Root-pruning is most beneficial in the case of old or large trees that are unsuitable for transplanting, and it is wisest to treat only half the roots one year and the other half the next autumn. Commence by opening out a trench 3 feet to 5 feet from the stem, then, taking a digging-fork work away the soil, gradually approaching towards the stem and underneath the tree, preserving all fibrous roots, but cutting well back all tap roots and strong fibreless ones. In returning the soil together with a little wood ashes or lime-rubble if considered necessary, make it quite firm especially under the stem. Carefully spread out the roots, bringing what can be bent to within 5 or 6 inches of the surface. If the soil is very dry, it may be necessary to afford water a few days previously to commencing the work, and again after it has been carried out.

Filberts should be gathered when dry, and placed in jars with the husks upon them, keeping them in a place that is not too dry. They generally keep well here, upon the tiled floor of the fruit-room.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith, Scotland.

Muscat Vinery.—If there is a desire to keep a supply of Muscat Grapes until the beginning of next year, maintain only a very little warmth in the hot-water pipes, and a mean temperature of 50° to 55°. Afford air in bright dry weather, but keep the house closed on damp or foggy days. Remove the foliage before it decays, and harbour no pot-plants in the house. Cover the inside border with hay.

Latest Vinery.—Gros Colman may continue to colour for some time yet, and improve in quality until January. Much fire heat and a high temperature are not needed now, but merely sufficient to keep a warmth of 55°. The weather during the next two months being usually very damp, care should be taken to keep the air within the vinery moderately dry. No plants should be permitted to remain in it. Exercise every means to counteract dampness in districts where the rainfall is very heavy. If the outside borders are covered with wooden shutters or sheets of corrugated iron in the winter, it will help to the better keeping of the Grapes.

Latest Peach-house.—If this house is not provided with artificial heat there may be some late varieties still to ripen, which owing to the cold, sunless autumn, are not likely to finish well. Make the house as warm as possible each day with what sunshine there may be, as much to ripen the wood for next year as to ripen the present fruits. If there are means of heating within the house, keep heat in the apparatus, and admit outside air until both fruits and wood are ripened. All Peach-houses should be provided with hot-water pipes, if only to be used in bad weather when the trees are in flower, and in cold or sunless autumns to ripen the wood.

The Fig-house should now be kept cool, and plenty of air afforded, unless the weather be frosty. If the branches have been left rather thickly together, cut out some of the older ones. Remove decaying leaves, so that the light will not be obstructed. Repot and pot Figs that require to be so treated, removing as much soil from the ball as can be done conveniently. Use a compost of fibrous-loam, bone-meal, and fine lime-rubble.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

SALES FOR THE WEEK.

MONDAY to FRIDAY, OCT. 13 to 17—
Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 11 o'clock.

MONDAY, OCTOBER 13—
Bulbs, Sweet Bays, and Palms, at Stevens' Rooms, at 12.30.

TUESDAY, OCTOBER 14—
Palms, Azaleas, Bays, &c., at Pollexfen's Rooms, Pilgrim Street, E.C.; Bulb Sales every day in the week.—Sale of Nursery Stock at Cockmanning Nursery, St. Mary Cray, by order of Messrs. G. & J. Lane, by Protheroe & Morris, at 11·30 o'clock.

WEDNESDAY, OCTOBER 15—
Bulbs, Azaleas, &c., at Stevens' Rooms.—Palms, Azaleas, Bays, &c., at Pollexfen's Rooms.—100 000 Fruit Trees at Perry Hill, Cliffe, near Rochester, by order of Messrs. W. Horne & Sons, by Protheroe & Morris, at 12 o'clock.—Azaleas, Rhododendrons, Narcissus, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 5 o'clock.

THURSDAY, and FRIDAY, OCT. 16 and 17—
Annual Sale of Nursery Stock at Tunbridge Wells Nurseries, Tunbridge Wells, by order of Messrs. T. Cripps & Son, by Protheroe & Morris, at 12 o'clock.

FRIDAY, OCTOBER 17—
Orchids in variety, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —51°.

ACTUAL TEMPERATURES:—
LONDON.—*October* 8 (6 P.M.): Max. 61°; Min. 41°. Weather fine and hazy; Wind N.E.
October 9.—Weather cloudy, and dull generally.
PROVINCES.—*October* 8 (6 P.M.): Max. 65°, Chichester; Min. 47°, Peterhead.

Edgings and Borders.

So much of the pleasant appearance of a garden depends on the edging adopted and the care bestowed upon it, that gardeners can hardly bestow too much thought and attention on it, so as to be ready to adapt their procedures, and the plants of which they make use, to varying circumstances of time and situation. Setting on one side for the moment the use of edgings of stone, terra-cotta, tiles, &c., which, however necessary in some cases, are objectionable on the score of formality, and which are apt to be lifted out of place by frost, we come back to the use either of cordon Apples, or of various low-growing plants whose habit can be easily regulated.

Common Thrift is a very old-fashioned edging, but a very satisfactory one, so is Königa maritima, as noted lately by Mr. Elwes. Gentiana Amarella formed, in two or three cases that we have met with, an edging of marvellous beauty, but then we have only seen such an edging three or four times in the course of our career. In our own case, though we have grown the plant for many years in a variety of aspects, we have never succeeded in getting it to flower at all! We were led to consider this subject by an article by our friend and colleague, M. ED. ANDRÉ, in a recent number of the *Revue Horticole*. Among the plants he mentions as suitable for the purpose are Santolina incana and Thyme. "Herbs" are generally too tall, or of too rampant growth; such an objection applies to Artemisia, Southernwood, Sage, Lavender, Hyssop, Marjoram, Arabis alpina, Alyssum, and even dwarf Pinks and Phloxes; dwarf Irises are good in spring only, St. John's Wort, Hypericum calycinum and Ivy, ramble too far and exhaust the soil.

There remains the "Box-edging," beloved of our fathers, the proper laying of which, in this country at least, is almost a lost art. Nevertheless, it is most useful, it is easy to grow, easy to trim and keep in order, satisfied with a little fresh earth or loam now and then, and not exacting as to water. After years of use it can be lifted and sold for ten times its original value. After forming a prosaic-looking edging for the kitchen-garden quarters, it can be worked in with the knots and parterres of the dressed garden on the terrace.

In the kitchen-garden, borders may consist of Box externally, whose formality may be broken up by inner lines of Spinach, whose leaves can be utilised in succession, by "Gaillon" Strawberries, which produce no runners, and clumps of Chives and Shallots. Bushes of Hyssop, common Thyme, Lavender, Sage, Balm, and Peppermint, cut in and kept within bounds, as well as Parsley, may be thus utilised. Summer Savory (Satureia) is a useful border plant, of which there are two forms, one annual (S. hortensis), one perennial (S. montana). By a little management the inner rows may consist of dwarf pinks, Germander, variegated Sage, Arabis, yellow Alyssum, Violas, Aubrietias, various Campanulas, downy Cerastium, and Stachys; Plumbago Larpentæ, Veronicas, Hellebores, though we should object to these latter in the kitchen-garden or anywhere near it. M. ANDRÉ does not mention the double white Rocket, a most valuable plant for cutting.

Of course, such border plants can only be tolerated in the kitchen garden where there is abundance of space, and where it is desired to offer facilities for walking in it; or to secure a supply of cut bloom, or to break up the prosaic formality of the vegetable quarters. The greatest care will be necessary to prevent encroachment, and to keep the plants within bounds, so that the outlines of the quarters may be preserved, and their inmates exposed to that full measure of light and air which are essential to their well being.

DR. E. GOETZE.—The greatly respected garden inspector at Greifswald, on applying for a pension, was presented by His Royal and Imperial Majesty, with the Order of the Red Eagle of the Fourth Class.

DR. STOLL, Ockonomierat, of the Royal Pomological Institute, Proskau, Upper Silesia, is now promoted to the office of Landes-Ockonomierat.

A HARVEST FESTIVAL.—Last Sunday was celebrated the Harvest Festival at Shirley, near Croydon. An excellent sermon was preached in the morning by the Rev. Professor GEORGE HENSLOW, V.M.H., and the offertory amounting to £20 4*s*. 3*d*., was given to the Gardeners' Royal Benevolent Institution.

INTERNATIONAL AGRICULTURAL CONGRESS AT ROME.—An international congress will be held at Rome in the spring of 1903, concerning which application should be made to the general secretary of the executive committee, Signor ED. OTTAVI, Rome.

THE KING'S KINDNESS TO A SEED MERCHANT'S ASSISTANT.—A correspondent writes: A young man, residing in Shandon Place, Edinburgh, WILLIAM DONALD, who served his apprenticeship in the seed department of Messrs. R. B. LAIRD & SONS, LTD., Edinburgh, and who has been in very poor health for some time back, was sent about a month ago to the Balmoral estate to stay with his grandmother, in order to see if the air there would do him any good. About a fortnight after his arrival in the north the KING heard of his illness, and sent his own physician, Sir JAMES REID, to ascertain if anything could be done for him. Sir JAMES made a long examination of the patient, and a careful inquiry into the case, but it is understood he could do nothing for the lad. No doubt he reported the result of his visit to His Majesty, and the KING presented himself at the cottage door the next morning, and, after expressing his sorrow to the mother of the sufferer, he asked to see the youth. Mrs. DONALD took him upstairs to the little room where her son was lying, and His MAJESTY spoke very kindly to the patient, and expressed his sympathy with him. He then turned to Mrs. DONALD, and told her that the nurse who attended him through his serious operation and illness was still with him, and that he would send her every day to help to dress her son's wounds and make him comfortable. He also said that a water-bed would be sent from Balmoral Castle, so that the patient's rest might be made easier, and added that if she could suggest anything that would please her son she had only to mention it to the nurse and it would be carefully attended to. *Scotsman, October* 2, 1902.

"BOTANICAL MAGAZINE."—The issue for the present month contains descriptions of the following plants:

Streptocarpus Mahoni.—A Gesnerad allied to S. Saundersii, Hooker, of Natal, in habit and inflorescence, but does not appear to attain the dimensions of that species, and the flowers have a more slender tube and broader lobes to the corolla, and almost sessile stigma. Leaves solitary, 1 foot or more in length, adpressed to the ground, crenulate, ovate-oblong, base cordate, pale green beneath; scapes many, crowded in one series on the base of the costa of the leaf, erect, and densely pilose; cymes much branched, effuse; flowers long, decurved and pendulous; lobes violet-blue, orbicular. A pretty species, native of British Central Africa.

Anemone cernua.—A native of the island of Nippon, Japan, of the island of Saghalin, of Corea, and all over Manchuria. The whole plant is clothed with soft, white, spreading hairs; radical leaves with the slender petiole a few inches long; peduncles long, one-flowered; flower nodding, variable in size, 1 to 2 inches in diameter; sepals ovate, obtuse, spreading, pale purplish externally and dark red-brown within.

Masdevallia Schrœderiana.—The flowers of this plant differ from those of any species previously described. Introduced by Messrs. Sander & Co., of St. Albans, and collected by their traveller, Mr. Hübsch, probably in 1884, and in Peru as far as they can recollect. Stems tufted, leaf about 6 inches long; flowers nodding, tube of perianth ½-inch long; sepals contracted into a recurved, bright yellow tail;

Spiræa ariæfolia in Mr. Leney's Garden, Saltwood, Kent.

Camellia growing in the open-air in Mr. Leney's Garden, Saltwood, Kent.

dorsal segments ½-inch long, dimidiately white and red, with a white streak on the red portion; lip oblong, rather longer than the petals.

Gladiolus Mackinderi. — A British East-African species, found by Prof. MACKINDER, of Christchurch, Oxford, on Mt. Kenia, at an elevation of 10,000 feet. Stem 2 feet high, slender, laxly leafy; leaves narrow, about 1 foot long, ¼ inch broad; spike 6 inches long, and five to six-flowered; perianth-tube yellow; limb 1½ inch broad, scarlet.

Iris Leichtlini.—Said to be allied to I. Eulefeldi, Regel. This new species was described and figured in our issue for October 4, p. 242, by Sir M. FOSTER.

GARDENING EXHIBITION AT STAFFORD.—On the 5th inst. an exhibition of vegetables grown in the County Council gardening schools throughout the county was held in the County Technical Instruction Buildings, Stafford. There was also an exhibition of articles prepared and cooked by children attending some of the elementary schools in Stafford, together with honey in glass by members of the Staffordshire Beekeepers' Association, and butter and cheese in connection with the County Council dairying instruction scheme. Mr. F. G. KITCHENER, the chairman of the County Technical Instruction Committee, in opening the proceedings, said that there were thirty-one gardening classes throughout the county, and the best specimens of each vegetable produced in them were allowed to be exhibited. That exhibition was a sample of the work which could be carried out in a large county, but which would be impossible in very small areas.

A NEW EDIBLE TUBER.—A good deal has been written lately, says Mr. E. HECKEL, in the *Agricultural Gazette of New South Wales*, on the Onsounifing and its tubers, the use and cultivation of which are steadily increasing in French tropical colonies. It has been incorrectly called Plectranthus Coppini, but, judging by the structure of its stamen, it is really a Coleus. It is a remarkable fact that this Soudanese plant will pass through all its stages of development in a short summer of about four months. Besides this, it resists the cold of the early part of November, and the first tubers introduced from the Soudan flowered early in October at Marseilles in the open air. The plant will doubtless be cultivable in the South of France. The tuber contains fatty substances, is rich in starch, glucose, and saccharose. It certainly contains but little albuminous matter, but is nevertheless a perfect food. Its taste when cooked is very agreeable, resembling that of "Crosnes." A very simple way of cooking them is to immerse them in nearly boiling water for twenty minutes, when the black skin can be easily removed, and the fleshy part which remains is white. Add a little chopped Parsley, butter, and seasoning, and serve hot.

THE CROP OF BRAZIL NUTS.—Whence come and where go the nuts which figure so largely on the dessert-table—described by cynics as a providential aid to struggling dispensing chemists? From Pará we learn that the nut crop for 1902 is now nearly all in the dealers' hands or in transit, so an accurate estimate of the total can be made. The crop is nearly double the total output of the last two years; the quality is unusually good, and the supply so managed that there has been neither glut nor shortage in the market during the season. Prices have been firm throughout, and so stock has not accumulated. The demand from the United States increases: in 1900 the "States" took 44 per cent. of the crop—Europe the remainder; in 1901 the "States" imported 50 per cent. of the crop, and this year 55 per cent. The total shipments of nuts from the Amazon up to March 15 have been 6871 tons, of which quantity Maraes shipped 3778 tons, Pará 3093; the remainder at other ports is estimated at about 300 tons, this making a total for the crop of 1902 of about 7200 tons.

STOCK-TAKING: SEPTEMBER. — The Trade and Navigation Returns for September are of a very satisfactory character. There is an all-round increase in both imports and exports, in the former by £3,555,700, and in the latter by £1,837,799. True, the figures for exports had shown an upward tendency during July and August, but those for last month seem to warrant the belief that the increase will be a lasting one. The increase of imports is thus shown: September, 1901, £38,208,791; September, 1902, £41,764,491; increase, £3,555,700. The following is our usual extract from the summary table:—

IMPORTS.	1901.	1902.	Difference.
	£	£	£
Total value ...	38,208,791	41,764,491	+3,555,700
(A.) Articles of food and drink—duty free	7,496,247	8,054,268	+558,021
(B.) Articles of food & drink—dutiable	8,772,924	9,720,033	+947,109
Raw materials for textile manufactures	2,549,203	2,782,020	+232,817
Raw materials for sundry industries and manufactures	5,189,448	6,159,940	+970,492
(A.) Miscellaneous articles	1,512,172	995,898	—516,274
(B.) Parcel Post ...	109,917	104,446	—5,471

It is worth noting that tobacco shows an increase of £312,066; large increases are to be found in food and drink, the raw materials for textiles and other commodities, also for manufactured goods. The figures for fruit, roots, and vegetables are as under:—

IMPORTS.	1901.	1902.	Difference.
Fruits, raw:—	Cwt.	Cwt.	Cwt.
Apples	71,859	235,212	+163,353
Apricots and Peaches	534	190	—344
Bananas... bunches	240,314	331,444	+91,130
Cherries	141	73	—68
Currants	74	81	+7
Gooseberries	.....	2	+2
Grapes	116,436	120,084	+3,648
Lemons	23,757	31,476	+7,719
Nuts—Almonds ...	8,388	14,159	+5,771
Others, used as food	74,113	42,588	—31,525
Oranges...	2,758	7,368	+4,610
Pears	76,993	188,807	+111,814
Plums	31,763	141,540	+109,777
Unenumerated, raw...	83,103	131,396	+48,293
Fruits, dried—			
Currants, for home consumption ...	122,885	212,696	+89,811
Raisins ,, ...	48,650	74,240	+25,590
Vegetables, raw:—			
Onions ... ...bush.	840,295	888,040	+47,745
Potatos ... ... cwt.	135,141	215,051	+79,910
Tomatos... ... ,,	75,412	79,896	+4,484
Vegetables, raw, unenumerated ...value	£14,459	£20,469	+£6,010

The increase of imports for the nine months foot up at £4,410,326, thus obtained: 1901, £384,460,711, against £388,871,037. Coming now to—

EXPORTS,

we find these giving a total for last month of £23,809,101, as against £21,971,302, or an increase of £1,837,799. The greater increase is found in metals and articles manufactured therefrom; with certain exceptions articles of food and drink, new ships, machinery, and mill work, also wearing apparel, &c. The increase for the nine months is thus noted:—1901, £209,143,040; 1902, £209,513,671; gain of £370,631. We hope for a still better record next month.

SIMON LORENZ.—We have to record the death on September 14, in the seventy-first year of his age, of this celebrated Erfurt nurseryman. His father was CHRISTOPHER LORENZ, who was the founder of the business which remained in his hands till 1872, when, upon his death, it was taken over by his sons, SIMON, LUDWIG, and WILHELM LORENZ.

FOREIGN CORRESPONDENCE.

AMIENS.

STROLLING along the fine boulevards which encircle the city of Amiens, I came across a red-brick building of modest appearance. A flight of stone steps leading up to it imparted a certain dignity which would otherwise have been lacking. In an English village it might have been taken for a Wesleyan chapel, but an inscription over the pediment denoted that it was the home of the Horticultural Society of Picardy. Curiosity being aroused, I sought admittance, and was received with every kindness by the *gardien*. On one side of the entrance-hall was an office devoted to the administrative work of the Society; on the other a small but select horticultural library. Here I found what I had been in search of—that is, a work on the market gardens or *hortillonages* of Amiens, which are so remarkable that at some future time I may recur to them perhaps in connection with the great vegetable show which, it is to be hoped, we shall see next year. I have said that I found the work I was in search of, but my success was of little benefit to me, for the treatise turned out to be written in the old dialect of Picardy. Only a word or two here and there was intelligible. The market gardens along the Somme, and the splendid produce in the markets and shops of the town, furnished an object-lesson which happily dispensed to a large extent with the necessity of endeavouring to decipher the jargon of Picardy. But of this more at another time. With the proposed Hall for the Royal Horticultural Society in mind, I was interested in seeing what was done by this humbler Society of Picardy. Passing then from the library, I entered a spacious hall some 24 mètres long by 12 in width. This being lighted fron the top could be utilised for exhibition purposes, or as a meeting-room for the members on occasions. That very afternoon (Sunday), as I was told, a *conférence* had been held on climbing plants. Upstairs was a second smaller hall devoted to student's purposes, which by the removal of a partition could be made into a gallery continuous with the large hall beneath. The arrangements were on a small scale it is true, but compact and convenient. Behind the building, hemmed in on all sides by houses, was a small experimental garden, perhaps 1½ or 2 acres in extent, oblong in form, severely practical in design.

A few flower-beds and borders still glowed with Dahlias and other autumn flowers, but the greater part of the garden was occupied with fruit trees, trained on wire rods with that neatness and ingenuity which characterise French fruit culture. There were cordons, espaliers, palmettes, pyramids, and all those other forms so familiar to the visitor

to French gardens. Pears were bearing generally a good crop, but a hurried glance did not permit one to ascertain whether any one form of training more than another contributed to the result. Apples on the Paradise stock, but variously trained, were showing brilliantly coloured fruit, and specially the Linnæus Pippin. Calville Blanche was also bearing a good crop, though only planted last autumn.

The trees are selected to show the different methods of training and pruning, and secondly to illustrate the kinds most suitable for cultivation for cider making and other purposes in the neighbourhood. The trees are clean and well grown, but too crowded, and furnish an excellent object-lesson showing what may be accomplished in a town garden; a town garden too, in which the air is vitiated by the smoke from countless factory chimneys. My visit was a very hurried one, but bearing in mind the proposed new hall in Vincent Square, and the garden at Chiswick, much larger than the one at Amiens, the visit furnished the opportunity for reflection, as the French say.

In another quarter of the town is the Botanic Garden, entirely given up to the oblong beds, which it seems to be considered is the correct way of illustrating the natural orders, their relative importance and affinities. Most certainly, the landscape gardener's designs are far more pictural, and can be made, as once they were at Oxford, to illustrate the numerical importance and the affinities of the several orders far better than the gridiron arrangement generally met with in most botanic gardens. The collections at Amiens seemed good and representative, well suited for medical and pharmaceutical students, but contain little of interest to the average gardener. He will find more to his taste in the pretty gardens and boulevards of the town. Even the students are deserting the Amiens garden for the fuller resources of Paris and even of Lille. Nevertheless it must be an odd sort of a garden in which a plant lover will not find something to attract his attention, and Amiens offers no exception in this particular. Those who visit the city during this month will have the opportunity if it pleases them to avail themselves of it of inspecting a fine fruit and cider exhibition, which will no doubt prove of great interest.

The boulevards which form so fine a feature do not demand special notice here, but mention may be made of one tree grown in a manner with which we are not familiar in England—that is the Catalpa, an excellent town-tree. Here it is grown as a standard, surmounted by a globose head of foliage in the manner of the so-called round-headed Acacias. This "habit" is, of course, artificially induced by the manipulations of the gardener, not always to be commended, but appropriate enough in the case of avenue trees, or of trees associated with formal architecture. *M. T. M.*

THE ROSARY.

CRIMSON RAMBLER ROSE.

WHEN purchasing plants of these Roses to force for 1903, it is advisable to get them as early as possible in the autumn, and pot them up as soon as they arrive. After they are potted, they may be left outdoors until frost comes, then placed in a cold house or frost-proof frame. Unless the canes are very long and unwieldy, they should not be shortened back; but when the time comes to start them growing, just cut out the weak and thin shoots, and tie down the strong ones, shortening back the latter only to a point where they will make a nice-shaped plant.

SEQUOIA GIGANTEA, &c., AT KNOWLE HILL, COBHAM.

IN the pretty garden of J. Earley Cook, Esq., about a mile from Cobham railway station, we saw recently a very fine specimen of the Sequoia gigantea. It is growing upon the lawn on the south-west side of the dwelling-house, and is from 85 to 90 feet high, the form and general condition of the tree being excellent, though the side facing to the south is naturally the most perfect. The specimen is interesting because about fifty years ago Mr. Cook was cultivating the young tree in a pot in the greenhouse, and it was due to the assurance given by a friendly visitor, that the species was perfectly hardy, that Mr. Cook decided to have it planted out-of-doors. Readers who wonder that such a mammoth species as the Sequoia was ever put into a pot should remember that when Mr. Cook's young tree was planted, there were very few of its kind in this country, and cultivators had not the same knowledge we possess of its extraordinary proportions, and its suitability for our climate.

Upon a hill in this same garden there was another fairly good specimen until a few years ago, when it was shattered to pieces by lightning. Rarely have we seen such a wreck as the tree now appears, for the stem and branches have been permitted to rest just as they fell. The species appear to be very liable to injury from this cause, whether it be owing to peculiar characteristics of the wood, or because the trees are often higher than any others growing near to them. We hope to reproduce a photograph shortly showing a fine specimen in Kent, which has been wrecked in a similar manner.

In the ten or twelve acres of ground around Mr. Cook's residence there are other interesting coniferous trees. The finest is a specimen of Pinus Coulteri about 45 feet high, an excellent tree, with thick, bold branches. A specimen tree of Abies Hookeriana has died during the present year. A specimen of Picea pungens glauca, 20 ft. high, is as perfect as any we have seen of equal height. Abies concolor violacea, A. amabilis, and several Cedars were noticed, of different heights and ages. On the terrace in front of the dwelling-house, two plants of Araucaria imbricata were planted originally. One of these died, and has been replaced by a young plant of the same species, and it is proposed to take down the other large one. It is a great pity to have to do so, but the tree is thought to be too large for its present position near to the house windows. The Umbrella Pine (Sciadopitys verticillata) has been planted, but it does not succeed.

The grounds are very interesting, and include a steep incline, from the top of which may be had excellent views of Ranmoor, Boxhill, Oxshott, and Epsom, the grand stand being readily visible upon a clear day. Until some time ago there was an old sand-pit on this incline that for many a year had been a nesting place for foxes. This has been made quite interesting by Mr. Wm. Welsh, the painstaking gardener and bailiff, who has been with Mr. Cook for twenty years. The banks have been decorated with suitable plants, and the base grassed over, and relieved with informal flower-beds, in which old-fashioned perennial flowering plants succeed very well. It is approached by paths crossed by rustic arches supporting Laurel, and the air is fragrant with Sweet Briar.

The flower garden is on the south-west side of the house, upon a terrace, and the scroll-like beds are made gay with some of the usual kinds of bedding plants. In a corner of the grounds a small water-garden affords an opportunity to cultivate a few Nymphæas and other aquatic plants.

The soil varies very much, and though there is plenty of good loam where the big trees thrive, in other portions of the garden it is not more than a few inches deep. The glass-houses are used for raising fruits and flowers for home use only; and the kitchen-garden affords a supply of hardy fruits and vegetables.

NOTICES OF BOOKS.

EUROPEAN FUNGUS FLORA, AGARICACEÆ. By George Massee. (Duckworth & Co.)

THIS small book gives descriptions in English in an abbreviated form of the gill-bearing fungi of Europe. It includes the Mushroom tribe, and the tough or woody-gilled fungi found on trees, stumps, and branches. As the work only professes to give a list of the Agaricini, it of course imperfectly represents the larger fungi of Europe. There are no illustrations, no glossary, and no list of localities; the species are not numbered, but the preface states that 2,750 species (of which 1,553 are British) are described, the foreign species being indicated in parentheses. From these remarks it will be seen that the work is hardly suited for beginners, but appears to be designed for students who already possess a considerable knowledge of Agarics. All the species of Agaricini found in Fries' *Hymenomycetes Europœi* are included, together with species recently described by Drs. Bresadola, Quelet, and others. The sequence, however, is not that of Fries and Quelet, but is in the main that of Saccardo. Quelet's arrangement of species is said to be "new and somewhat perplexing, and the index is a terror," a description we venture to say that might be justly applied to more than one new arrangement of the Agaricini, including that of Saccardo.

To write a criticism of this book, it would be necessary to read through the 2,750 condensed descriptions, and to note whether all the parentheses are rightly placed; this we confess we have not as yet done. A considerable number of new British species are included in the work, but as they are not marked off by a different kind of type or by an asterisk, one has to read the book through, and so look after and note them. In reference to these species, a brief indication of the localities would have been very useful—but no indications of geographical distribution or localities, dates, or habitats are given. Failing these, a brief indication of where and by whom these new British plants were described would have been instructive. In the *addenda*, twenty-four omitted species are given; none of these are marked with parentheses, so they naturally find a place here amongst British species.

The book is well got up and printed, and presents a very good appearance as a small, handy guide book. As far as we have read, it appears to be remarkably free from misprints, and there is an excellent index. The work undoubtedly represents a great amount of hard labour, and will prove useful to those who already know a good deal about the Agaricini. The inclusion of recently described species by continental botanists is a very valuable feature of the book, and we sincerely hope that the parentheses have been carefully placed and revised, an easy enough task to one with a good memory, and with only some 2,000 or 3,000 species of the Agaricini to deal with. *W. G. S.*

ASTER SHORTI.

The variety of Michaelmas Daisy shown in fig. 89, from a photograph by Mr. W. Rossiter, Bath, belongs to the small-flowered section; but the blooms are produced with the utmost freedom, and the variety is a very showy border plant. It varies in height from 3 to 4 feet, and the flowers are of a pleasing light blue colour. On September 24 last the variety was highly recommended by the Floral Committee of the Royal Horticultural Society, after an inspection of the perennial Asters at Chiswick.

HAMPTON APPLES.

Seeing that the very fine samples of cooking Apples Bismarck, Lord Suffield, The Queen, and Lane's Prince Albert, as well as the beautiful samples of "King's" and "Cox's," with which Mr. H. Mason of Hampton, Middlesex, took 1st prizes in certain market-garden packing classes, evoked so much attention and interest at the Crystal Palace just recently, the first-named four varieties giving some of the finest Apples in the show, it was no wonder that in reporting on these fruits at the time the *Gardeners' Chronicle* should have expressed a desire to learn on what kinds of trees these fruits were produced. It would seem as if in some other direction much interest of a similar nature was felt, as numerous letters were received in reference to them at Hampton, but Mr. Mason took a short holiday so soon as the show had been seen, hence none of the letters mentioned had, when I called at the Hampton Farm on the 26th ult., been replied to. But though Mr. Mason was absent, I was shown the trees, and found a considerable breadth of quite young ones, but two years planted, which were the chief producers of the fruits. All were on the Paradise stock. Mr. Mason is his own tree raiser, and purchasing young stocks, plants and buds them. This is done every year, so that the planting of young trees, as it should do in any good-class market garden, goes on annually, and naturally, being raised in that manner, the trees cost but little. I found the rows of almost miniature bushes, but 7 feet apart, and the latter but 6 feet apart in the rows, and thus planted, space is found for nearly a thousand in an acre of ground. But ample as seemed to be the space for these small trees now, I noticed that others several years planted wanted double the space. It may be, therefore, that Mr. Mason does not desire large trees, but small ones; and many of these produce very fine, early ripening, well-coloured fruit. The older large trees are being grubbed up as young ones come into bearing generally. It is indeed, when young trees can be so readily and cheaply raised, a moot point whether it is worth while to allow Apples on the Paradise-stock to get aged. The planting of the fruit trees two years since was followed by an under crop of Strawberries. The soil is a strong, deep, stiff loam, and carries both crops well, but on lighter soils such double cropping with Strawberries is very exhausting, and would not be profitable. Pears also are largely worked on the Quince-stock, and do remarkably well, producing fine fruit. This season, however, the crop on four-year planted trees has been very light, and in spite of the heavy surface crop, the wood growth has been almost luxuriant.

The principal varieties of these fruits planted are, Pears, Windsor, Louise Bonne, Pitmaston Duchess, Doyenné du Comice, and Williams' Bon Chrétien. Of Apples, Cox's Orange Pippin on the tiny trees were fruiting well, carrying a very fine handsome sample. Most of the other varieties had been gathered. Of other dessert varieties, the chief are Gladstone, King of the Pippins, Ribston Pippin, Lady Sudeley, and that very pretty Apple, Beauty of Bath. The chief cooking varieties are, Lord Suffield, Bismarck, Cox's Pomona, Queen, Ecklinville Seedling, Prince Albert, Duchess of Oldenburg, and Ringer. That the method of producing remarkably fine fruit on young bush-trees as pursued at Hampton, is the best, there can be no doubt. We only need that it shall be done on tens of thousands of acres of similar good land. *A. D.*

Fig. 89.—Aster shorti.

COLONIAL NOTES.

GRAPES.

A recent *Gardeners' Chronicle* has a note from Dr. Bonavia, giving some particulars of the Strawberry-Grape. This Grape is rather common here, and we consider it to be identical with the Labrusca, or at least a variety of this Grape. As observed by Dr. Bonavia, this Grape appears to be free from all the diseases that affect the more largely grown varieties; this is the case not only in districts having a dry summer climate, suitable for full success in the growth of the Vine, but also where the normal rains fall during the midsummer months. This resistant power of the Labrusca Grape enabled the late Sir Theophilus Shepstone to make wine from fruit grown in his vineyard at Maritzburg, Natal. *E. T.*

HOME CORRESPONDENCE.

LEAF-MOULD FOR ORCHIDS.—The use of leaf-mould is the leading subject at the present moment amongst cultivators of Orchids, who should, as Mr. O'Brien suggests, give their experience, when doubtless much good will accrue. I am of the opinion that leaf-mould will in the future be used in most Orchid composts, but in what proportion to other materials is the point on which cultivators differ. I have proved that some leaf-mould is an assistance to most Orchids, and I make use of one-fifth, and with so small a proportion great care has to be observed in affording water, which seems to be the critical matter. I have tried the best native leaf-mould from the Oak, but I much prefer that from Belgium, although it looks like rubbish when compared with good English Oak leaf-mould. When a compost containing a proportion of leaf-mould is afforded water just sufficient to damp the surface is enough, and if more be applied the compost will remain wet for several days afterwards, a state very injurious to the well-being of the plants, and frequently damping between the pots is far better than the direct application of water. But before any one makes use of leaf-mould in quantity, cultivators should make experiments and become acquainted with its use with various species, and the methods of treatment most desirable to follow. *W. P. Bound, Gatton Park Gardens.*

BEGONIA GLOIRE DE LORRAINE AT DRAYCOT.—A plant so accommodating and valuable in the winter is worth growing to perfection, and there are some very successful cultivators of Gloire de Lorraine in this country. Reports from time to time record notable achievements. Mr. Bible, of Draycot Gardens, Chippenham, certainly claims a share of fame. His collection of plants at the present time is divided into groups varying in their age and size. There are plants occupying pots ranging in size from 8 inches downwards, and plants of corresponding stature. The earliest batch was in full bloom by the end of September, large, vigorous bushes, perfect in health and training, though occupying comparatively small pots; these are used in various ways in the house. They are at all times provided with a warm temperature and abundant humidity, so as to foster rapid leaf and root growth. Bushes quite 2 feet high, and of proportionate breadth, are produced in 6-inch pots—marvels of floriferousness. The fertile soil of Draycot suits these Begonias in an eminent degree, and they are the admiration of all who see them. *W. S.*

TROPÆOLUM SPECIOSUM.—Who that has observed this beautiful, hardy, flame-flowered Nasturtium in flower in Scotland and the North, has not envied their northern gardener, the almost exclusive possession of this floral treasure? It is remarkable that this pretty and erratic plant although a native of sunny Chili, should flower and grow but poorly as a general rule in the sunnier parts of Britain, and succeed so well in the misty North. Here and there one hears of success attending its cultivation in the South, but those cases are very exceptional. One such, I came across a few weeks ago; the plants were growing in comparative luxuriance. This was at East Burnham Park (near Burnham Beeches), as warm and sunny a district as anywhere within the same distance of London. The plants were not in their full beauty when I saw them, but judging by the number of open blooms and those which were in bud, they would make a brilliant and beautiful show till the beginning of the present month. The tubers were planted some seven or eight years ago in a border facing north, among some Rhododendrons and other shrubs. The growth they made during the first few years was feeble and disappointing, and many persons would have despaired of success; but Mr. Veitch had set his heart on establishing this plant in the garden of his then new country house, and that he has succeeded so well is due perhaps more to the fact that he chose a suitable position for it, and having done that, he let it alone; and the growths now cover most of the shrubs, and promise to take possession of the lower part of the roof of the house. *O. T.*

—— The note on this plant in *Gard. Chron.*, Sept. 27, p. 233, by "J. O'B.," induces me to describe a very fine colony of this beautiful plant at Cowdray Park, Midhurst, which I saw a few weeks ago. The plants were in grand bloom, and had an abundance of seeds. The roots had been planted at the foot of some Conifers 12 feet high, having yellow variegated foliage, which were growing on a bank. The shoots of the Tropæolum were so entwined in the branches of the Conifers as to present a sheet of scarlet blossoms, which in conjunction with the golden hue of the tree foliage, had a striking effect worth much effort to obtain. I have found that the plant is not difficult to establish, providing plenty of silver sand be placed over the roots when they are planted, especially in soils that are cold and wet, and well-established plants in pots are procured. The roots will often remain dormant for some months after planting, and yet grow and make good specimens. *E. S., Woking.*

APPLE BISMARCK.—This variety is a free grower, and a fine bearer in the gardens here. I planted several young trees of it, worked on the free stock, some six or seven years since, and they have borne crops of fruit, more or less regularly, every year since the second year of planting. The largest bushes are 12 feet high and 12 feet through, and this year, when the Apple crop is almost a complete failure, these bushes were so heavily laden that some of the branches had to be supported with props, to prevent them from breaking under the weight of fruit. The fruits, which were gathered at the end of last week, are large, sound, and highly coloured. *A. Pettigrew, Castle Gardens, Cardiff, Oct. 6.*

—— In the *Gardeners' Chronicle* of Sept. 13, p. 192, Mr. G. Woodward had a note on this Apple, and asked readers to state how it succeeds with them. In these gardens there is a remarkable heavy crop of highly-coloured, clean fruit on trees of about nine years old, which make strong, clean growth. The shoots are not allowed to form a tangle. The soil in this garden is clayey, and fruit tree growth is rather late in maturing. *H. Avery, Battle Abbey Gardens.*

SPECIAL PRIZES AT HORTICULTURAL SHOWS.—I herewith enclose a circular [not inserted. ED.], I received from a firm, which I think is worth notice. This firm offers prizes at flower shows on the following condition: "The plants must be purchased from my establishment any time during the current year in which the show is held, and *up to a week beforehand if preferred.*" I have underlined the clause I wish to call attention to. In our society, competitors have to sign a declaration that they have had their exhibits in their place for at least two months before the show. A similar declaration, I daresay, is insisted on by all societies. This mischievous clause will simply lead competitors into temptation, and encourage the buying of plants, not the growing of them. I expect that no committee of any respectable society would accept prizes on these terms. *Robert Macfee, Paisley.*

[We do not think that your society errs on the side of stringency in the matter of the possession of plants by the exhibitor previously to showing them for prizes, and would ourselves prefer a considerably greater length of time. We see no reason to alter our opinions as expressed in our leading article, p. 216, of the *Gardeners' Chronicle*, for September 20, 1902. ED.]

CUCUMBER-BLOTCH.—Your interesting article on "Cucumber-blotch" rather surprises me in one particular, viz., that it is not possible to contract the disease through the seed. We are the only Cucumber-growers for miles around here; we do not grow on the rushing system, and, until this year, always saved and used our own Cucumber-seed, and no other in any quantity; in fact we used nearly all our own this year, but unfortunately purchased 200 seeds only from a Sussex grower. We now have the disease, and cut one house out (within a week of the disease first showing) as useless. A friend of mine having one small Cucumber-house right out in the country in Herefordshire (he is miles from a town), and takes the few he grows to market himself, and no other but his own few empties could possibly be used; he has it badly, and he bought the seed from a Sussex grower. I could name two other cases of precisely a similar nature, but will not take up your valuable time further; but all Cucumber growers are, of course, much concerned in the matter, and we hope you will encourage small attemps to get at the bottom of it. We also note you advise spraying the plants. We have tried this, and it aggravated the disease rather than lessened it, and wherever tried we have had to clear out the plant within a week; but where kept dry we ran on to the end of the season, of course eaten up with red-spider, but it was the better of two evils. *Edwd. R. Ramsbotham, Bletchley.*

EXHIBITIONS AND GOOD GARDENING.—Traditions die hard, and especially so with ignorant people. How often has it been said of gardeners who exhibit at flower shows that they devote their attention on a few things to the neglect of the many, hence they so often have bad gardens. Nothing can be more absurd than is such belief; nothing more contrary to fact. My mind was drawn to this recently when visiting gardens which are under the management of some who are noted exhibitors and have great reputations as such. In each case their gardens are first-rate in every respect; indeed, they would be difficult to excel anywhere, and there is ample evidence in every direction that their work at home and their success at shows are in direct proportion. But then that result is not found in one or two cases, but in nearly all, if not in all absolutely. The neglectful gardener who has both a poorly-kept garden and poor crops, never has cut any figure at exhibitions, or indeed in anything. In a note from Gloucestershire, Mr. W. Iggulden is reported to have said that "where there are village flower-shows there are to be found the best cultivated gardens and allotments." That statement is a truism; it is the case everywhere. In my wide experience of such gardens and allotments in Surrey, I have always found those which obtained, when judged, the highest number of points for crops and keeping, always provided the best exhibits at the horticultural shows. It is equally so in relation to large private gardens; but then it is also equally the case that the high-class culture needful to produce show samples also produces superior crops for home use and plenty of them. Exhibiting for prizes or for honour has done wonders for gardening. I should hold the withdrawal of all such stimulus to good work as being to gardening a national misfortune. *A. D.*

THE HEIGHT OF FLOWERING PLANTS.—In giving descriptions of many plants the question of height is the most difficult to decide. So much depends upon the conditions and position in which they are grown; and even under exactly the same conditions there is a considerable variation. With the Asters (or Michaelmas Daisies), for instance, in growing a collection together, the approximate heights may be taken as a guide; but take them to a different neighbourhood, and what may have been described as growing 3 feet, may attain to 5 feet, or even more. With Cannas there is even more difficulty, for the same variety will vary several feet. I note that Mr. Godfrey refers to Canna Mrs. Kate Gray as growing to 5 feet with him; this I can quite understand. I have seen it fully that height myself. I have also seen plants well in flower which would not measure 3 feet to the top of the

flower-spike. In a dry, sandy, exposed position many plants will come into flower at half the height they would attain to in a rich, moist, loamy soil. Cultural conditions make so much difference that it is difficult to arrive even at the approximate height of many subjects. It is, however, quite safe to make some allowance according to the soils and positions, but in rainy seasons, this may be upset to a great extent. I have been looking through various reports and descriptions of plants, and I am not at all surprised to find considerable variation in respect to the heights given; and no one should be surprised if the descriptions do not prove quite correct in this respect. *H.*

DOUBLE FLOWERING OF A LABURNUM TREE.—Mr. J. Harrison is not the only possessor of a Laburnum in flower at this season. I saw a notice in the *Mail* of to-day (October 6) of one in full blossom in Cheshire. I have several young trees of Cytisus semperflorens in flower at the present time, which also flowered in the spring, as usual. I am inclined to the belief that your correspondent's tree is of this variety, which is almost identical with the common kind, except that it flowers twice in the season. *A. Hillman, Sussex.*

THE CALOCHORTUS OR MARIPOSA LILIES.—I often wonder why these exquisite flowers are so rarely seen in even the best of gardens, public as well as private. All are beautiful, but the varieties of Calochortus venustus are especially so, and good flowering bulbs are cheap enough, even though they only bloom the first year after planting. In pots they are very charming as grown in a sunny frame or pit until the shapely buds appear, when they can be brought into the greenhouse or conservatory. I have also seen them flower very freely for several years in succession on narrow sunny borders outside but near to heated plant houses, the little extra warmth afforded during winter and spring being an advantage to them. Those who have seen these exquisite flowers as exhibited by Messrs. Barr & Sons, and other growers, at the Royal Horticultural Society's meetings, will need no other evidence as to their exquisite form, texture, and colouring, being as they are quite distinct from all other hardy bulbous flowers. *F. W. B.*

PRICES OF NEW SEEDLING NARCISSI.—One of the most perplexing things that meets the eye of the student of price lists and catalogues is the varying prices at which many new Daffodils are now being offered for sale. Perhaps the size and quality of the bulbs offered has something to do with it, or the stocks may overgrow the demand in one place and not in another. Take N. Will Scarlet for example: in one list I find it offered at £25 per bulb, in another it is £20, whilst in a third it is offered at £18! Again, the beautiful Narcissus Lady Margaret Boscawen is priced at £10 in one list, and at £5 in another; N. Torch is 30s. in one list, and three guineas in another, and there are many other variations or fluctuations in price that are apt to startle young beginners in the culture of choice Narcissi. A variation in price of £7 in the case of N. Will Scarlet is enough to make a novice wonder "where 'e are." *Maggie May.*

LAW NOTES.

FORTUNATE CREDITORS.

THE creditors of Lord Lyvedon have just received a windfall. His lordship in 1894, then the Hon. Courtenay Robert Percy Vernon, nurseryman, of Stanwick, Northamptonshire, filed his petition in bankruptcy. Dividends amounting to 4s. 3¾d. in the pound were paid, and the trustee was released. Subsequently Mr. Vernon succeeded to the barony and the entailed estates, and the personal property of his uncle, the late Lord Lyvedon. It was then discovered that a large quantity of silver plate, formerly regarded as family heirlooms, passed into the absolute possession of the new lord. The Official Receiver stepped in, realised the plate, fought an action in the Divisional Court on the admission of a fresh proof for £4 384, and is now distributing a supplemental dividend of 4s. 11½d. in the pound on the whole indebtedness, which is over £8,000.

BULB GARDEN.

GALANTHUS OLGÆ.

To all appearance this Snowdrop will be the earliest to come into bloom of the species which flower towards the end of the year. As I write this, about the middle of September, it is well above the soil; but there is every likelihood that November will be well in before it shows its pure white flowers, though its normal time to come into bloom in its native habitat on Mount Taygetus, in Greece, is in October. It is, for an autumn Snowdrop, a fairly vigorous grower; and it seems less liable to go off unexpectedly than some of these pretty, but often delicate Galanthi. Of course, there are some who despise these autumn Snowdrops on the ground that they are unnatural, yet this objection is groundless, as the flower is simply flowering at its proper season. To say that they prefer Snowdrops which only flower in the beginning of the year is enough. That is entirely a matter of taste, but those who grow such species as G. octobrensis or the one under notice, always look eagerly for its appearance above the soil and its coming into flower. Mr. Baker seems to sanction the claim of this Galanthus to specific rank by naming it as a species in his *Amaryllideæ*, but it seems to differ little from the other autumn Snowdrops, which are now classed under G. nivalis. *S. Arnott, Carsethorn by Dumfries, N.B.*

SOCIETIES.

ROYAL HORTICULTURAL.

OCTOBER 7.—The usual fortnightly meeting of the Committees was held on Tuesday last, and once again the Drill Hall, Buckingham Gate, Westminster, was filled with a very interesting and varied display of flowers, fruits, and vegetables. A large exhibit of pot Ivies in numerous varieties, from Mr. J. RUSSELL, Richmond, grouped along the floor in the centre of the hall, afforded a foil to the bright effects of the exquisite autumn Roses, the Orchids, Chrysanthemums, Dahlias, and other flowers.

There was a very satisfactory exhibit of Orchids, and the ORCHID COMMITTEE recommended awards of two First-class Certificates, and two Awards of Merit, to valuable novelties, including a lovely Cattleya from Baron Sir HENRY SCHRÖDER.

The FLORAL COMMITTEE had not so many meritorious novelties before it as on recent occasions, and recommended one Award of Merit only, this being for a new early-flowering Japanese Chrysanthemum. The most astonishing exhibits before this Committee were those of Roses, some of them as beautiful as we have seen them in June.

The FRUIT AND VEGETABLE COMMITTEE recommended Awards of Merit to Pear Michaelmas Nelis, and a seedling Melon. This Committee also recommended two Gold Medals and a Hogg Medal, but such seeming extravagance was perfectly justified, the two Gold Medals being richly deserved by Lady WANTAGE'S gardener, Mr. Fyfe, who showed a collection of fruits and vegetables; and Messrs. DOBBIE & Co., Rothesay, who had a magnificent collection of Potatos. The Hogg Medal was recommended to the Earl of HARRINGTON, who showed a collection of fruit of the usual quality for which Mr. J. H. Goodacre, his Lordship's gardener, is renowned.

In the afternoon a lecture upon "Experiments with Chemical and other Manures" was delivered by Mr. F. W. E. SHRIVELL.

Floral Committee.

Present: W. Marshall, Esq., in the chair; and Messrs. H. B. May, Jas. Walker, C. T. Druery, Jas. Hudson, J. A. Nix, Chas. Dixon, John Jennings, Geo. Gordon, Chas. Jeffries, H. J. Cutbush, C. J. Salter, Chas. E. Pearson, R. C. Notcutt, W. Cuthbertson, W. P. Thomson, E. H. Jenkins, J. H. Fitt, C. R. Fielder, E. T. Cook, R. W. Wallace, and Ed. Mawley.

Mr. JOHN RUSSELL, Richmond Nurseries, Richmond, Surrey, arranged an extensive collection of Tree Ivies as a group in the centre of the Hall. The plants consisted of green and variegated-leaved species and varieties, forming an interesting exhibit and a useful object-lesson to the possessors of gardens generally, and more particularly to those living in smoky towns, where colour effects, by the use of flowers, are not always attainable. Yellow and white variegated Ivies being used in brightening up the most unfavourably situated garden by plants in pots, or sunk or planted in beds. Of the varieties noted may be instanced Hedera arborea canariensis aureo-maculata, having yellow leaves, and splashes of the same tint on green leaves; the tree form of H. digitata as a standard, on 2½ ft. tall stems; similarly H. flavescens, with leaves of a bright lemon yellow; H. Silver Queen, H. spectabile aurea, the variegated arboreal form of H. rhomboidea obovata, H. madrense variegata, the leaf having white streaks and splashes; H. minima, with green leaves; H. lusitanica azorica, with green leaves; H. Gold Cloud, a small-leaved variety, with numerous leaves of a pale yellow colour. Among the green-leaved species and varieties was the singular-looking H. Glymii; and H. palmata aurea, a variety with a very lively variegation. Most of the plants were profusely covered with flower-buds and flowers, or with fruits, and all of them appear to have the tree form thoroughly fixed (a Silver-gilt Flora Medal).

ROSES.

Messrs. FRANK CANT & Co., Braiswick Nurseries, Colchester, had a display of Roses, arranged in about eighty green vase-like tins, which were placed on a stage with shelves covered with a bronzy-green-coloured cloth. We can only mention a few of the most attractive varieties in this splendid exhibit of October-blooming Roses. These are Madame Berkeley, a large Tea, of faint salmon-pink colour; Geo. Nabonnand, a variety of much the same type, but of richer colour, very fine; Marquise de Nivens, a Tea Rose, shown as bright pink little buds; Marie Van Houtte, Muriel Grahame, Maman Cochet and White Maman Cochet, two of the most beautiful of all Roses; Francis Dubreuil, a bright crimson-coloured Tea; the new Lady Roberts, Killarney, and the H.T. Rainbow (Gold Medal).

Messrs. B. R. CANT & SONS, Colchester, also showed a fine collection of Roses, the exhibit including about forty bunches, arranged on shelves similar to those in the exhibit described above. Particularly good were Papa Gontier, Frau Karl Druschki, Ulrich Brunner, Maman Cochet, White Maman Cochet, Souvenir de Catherine Guillot, Mrs. John Laing, Laurette Messimy, Madame Hoste, &c. (Silver Flora Medal).

Mr. GEO. PRINCE, Longworth Nurseries, Berks, was awarded a Silver Flora Medal for a smaller, but delightful exhibit of Roses, arranged in Mr. PRINCE'S usual tasteful fashion. Especially good were such varieties as Bridesmaid, Comtesse de Nadaillac, Marie Van Houtte, Mrs. Mawley, Bridesmaid, Bessie Brown Maman Cochet, and White Maman Cochet.

A pretty Polyantha Rose (Wm. N. Lavasseur), having small, semi-double flowers of deep-crimson colour, was shown by W. J. WOODS, Esq., Swaythling, Southampton. The plants were in bloom in pots.

CHRYSANTHEMUMS.

Messrs. W. WELLS & Co., Earlswood Nurseries, Redhill, again made an imposing display with Chrysanthemum flowers, all of which had been cut from plants in the open, except twelve specimens of the following varieties: Rayonnante, Mme. Von Andre, Mutual Friend, Miss E. Fulton, Miss A. Byron, Mrs. T. W. Pockett, &c. These were large exhibition blooms and were shown on a board. The out-of-door grown varieties were grand, the colours being varied, distinct, and well developed. Some of them including Parisiana, Carrie, Goacher's Crimson, &c., in tall bamboo stands, had a decidedly pleasing effect (Silver Flora Medal).

Mr. J. SURMAN, Victoria Nursery, Beckenham, exhibited a group of dwarf grown, sturdy Chrysanthemum plants. They had been grown in the open ground, lifted and allowed to perfect under glass. The varieties included Soleil d'Octobre, Mme. Gustave Henry, and Mychett Glory, the last named being a fine early Japanese of pale red and orange colour.

Messrs. J. HILL & SONS, Barrowfield Nurseries, Lower Edmonton, Middlesex, exhibited a group of Ferns, of

which the predominant feature were the excellent plants of Asplenium nidus, from quite small plants in 3-inch pots, to specimens in tubs and having fronds about five feet long. The plants were clean looking, well-grown examples. Ficus radicans variegata was also much in evidence (Silver Gilt Banksian Medal).

Messrs. WM. CUTBUSH & SON, Highgate Nurseries, London, N., exhibited a group of Carnations, most of them tree varieties, including the new white-flowered Mrs. S. J. Brooks, Harry Fenn, crimson with fringed petals; J. H. Manley, scarlet; Sir Hector MacDonald, pink and white, &c.; also several Souvenir de la Malmaison varieties as Juliette, Sir Chas. Fremantle, Margot, and Princess of Wales.

HARDY FLOWERS.

Mr. JNO. FORBES, Hawick, N.B., brought a collection of Phloxes, Pentstemons, and Carnations from "across the Border." The Pentstemons were remarkable for the size, colour, and markings of the flowers; such varieties as Miss Dawson, Mrs. Oliver, President Carnot, James Ramsay, Fernard Foureau, Mrs. Henwood Thompson, Arthur Allsop, Joseph Chamberlain, Dragoon, N. Barnes, and Mrs. Roberts, being specially recommendable for these points. The Phloxes, too, were shown in fine condition, considering the distance they had travelled. One of the best varieties was one named John Forbes, rich rose colour, shaded violet. The Carnations were border varieties, and amongst them were some of excellent merit (Silver Flora Medal).

Mr. THOS. S. WARE, Ltd., Hale Farm Nurseries, Feltham, Middlesex, showed a great bank of hardy flowers which included numerous varieties of perennial Asters, and a display of Gladioli. A few Dahlias faced the group, and amongst these were blooms of the Grand Duke Alexis, and some choice varieties of the Cactus type (Silver Banksian Medal).

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, Sussex, staged a few of the most showy perennial Asters, as the well known A. Harper Crewe, A. N. B. rosea, A. Amellus bessarabicus (this lovely variety was shown in excellent condition), A. punicens, and A. multiflorus albus; Pyrethrum uliginosum, and Helenium grandicephalum striatum, came from the same establishment, and a large exhibit of single Cactus and Pompon-flowered Dahlias (Silver Banksian Medal).

Mr. B. LADHAMS, Shirley Nurseries, near Southampton, had some most attractive hardy flowers, the colours of which were as bright as they could have been a month ago. The beautiful Coreopsis Eldorado (yellow), some of the hybrid Lobelias noticed on the last meeting, Scabiosa caucasica, several good herbaceous Phloxes, perennial Asters, &c., were among the species shown (Silver Flora Medal).

Messrs. JNO. PEED & SONS, Roupell Park Nurseries, Norwood Road, London, S.E., made a display of varieties of perennial Asters, in about fifty bunches.

Messrs. BARR & SONS, King Street, Covent Garden, London, W.C., exhibited a group of flowers of perennial Asters, herbaceous Phlox, Kniphofias, border Chrysanthemums, Dahlias, Gladiolus Lafayette, Lobelia cardinalis, &c. (Silver Banksian Medal).

Mr. AMOS PERRY, Hardy Plant Nursery, Winchmore Hill, London, N., had some very fine hardy flowers in the best condition. Aster Edna Mercia, A. Perry's Pink, Liatris pycnostachya, Astrantia carnotica, Sedum spectabile, &c., were capital; whilst some growths of Solidago Shorti, apparently a glorified form of latifolia, about 5 feet high, were the finest developed we have seen (Silver-gilt Banksian Medal).

A group of well grown, nicely flowered plants of Gloire de Lorraine Begonia was shown by RONALD KEEP, Esq., Woollet Hall, North Cray, Kent (gr., Mr. S. Pym) (Bronze Banksian Medal).

F. A. BEVAN, Esq., Trent Park, New Barnet, was awarded a Bronze Banksian Medal for an interesting group of perennial Aster flowers.

A novel exhibit came from Mr. W. J. BELDERSON, Apiary Nurseries, Terrington St. Clement, Lynn, Norfolk. A collection of Hyacinth bulbs was shown for the purpose of drawing attention to an effort that is being made to cultivate them in this country. The specimens included (1) bulbs cut for propagating, showing bulblets; (2) bulbs after one year planted; (3) bulbs after two years' growth; (4) perfectly matured bulbs for forcing.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, exhibited a few plants in flower of an Acanthaceous plant, known as Daedalacanthus parvus, in habit like an Eranthemum, and having deep violet-blue coloured flowers. Also plants of a hybrid winter-flowering Begonia from B. Froebelii × B. polypetala, and a tall-growing, bold flowering Aconitum labelled A. Wilsoni.

AWARD OF MERIT.

Chrysanthemum Joseph Lowe.—This is a rich, yellow-coloured Japanese, of excellent type for use in decoration; shown by Mr. J. SHAWYER, Cranford, Hounslow. The pot plant carried about a score of good flowers.

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair), and Messrs. James O'Brien (Hon. Sec.), De B. Crawshay, H. Ballantine, F. A. Rehder, E. Hill, H. T. Pitt, G. F. Moore, T. W. Bond, F. W. Ashton, W. Boxall, W. H. Young, H. A. Tracy, H. Little, J. Wilson Potter, and W. A. Bilney.

Several good groups were arranged, the largest and most generally representative of the Orchids of the season being that for which H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood), was awarded a Silver-gilt Flora Medal. Good Odontoglossums were conspicuous in the group, including some twenty-five plants of excellent O. crispum, several O. × Andersonianum, O. grande, O. Harryanum, and O. Uro-Skinneri, being included. The Cypripediums were C. purpuratum, C. insigne vars., C. Spicerianum, a pretty form of C. × Memoria Moensii, the fine C. × Thurgoodi, C. × Wiganianum, C. bellatulum album, C. × tessellatum, &c. Other plants noted were a singular form of Cattleya × Hardyana, named Distinction, the lip of which, in its dark purplish crimson colour and fine gold veining, showed no departure from C. aurea, while the sepals and petals were almost as in C. Warscewiczii; a curious and rather pretty hybrid of C. Acklandiæ, C. labiata, C. Mrs. W. J. Whiteley, excellent Lælia pumila, the pretty Cirrhopetalum appendiculatum, Oncidium papilio, O. × Mantini, Dendrobium Victoria Reginæ, Pilumna nobilis, and Miltonia spectabilis Moreliana.

Messrs. JAS. VEITCH & SONS, Chelsea, were awarded a Silver Flora Medal for a good group of their hybrid Lælio-Cattleyas, &c., all very good and showy flowers. Lælio-Cattleya × Tyro, was a pretty new hybrid between L.-C. × Proserpine, and C. Gaskelliana, with a peculiarly elongated, purple-veined labellum, somewhat resembling C. Schilleriana. Three distinct forms of L.-C. bletchleyensis appeared, also good forms of L.-C. × Nysa, L.-C. × Bryan, L.-C. × Pacavia, L.-C. × Parysatis, L.-C. × Hermione, L.-C. × Aphrodite, L.-C. × Ennomia, and the bright yellow L.-C. × Ophir. Cattleya × Mrs. W. J. Whiteley, C. × Chloe, and others, all being finely grown and well flowered.

WALTER C. WALKER, Esq., Winchmore Hill (gr., Mr. Geo. Cragg), received a Silver Flora Medal and a Cultural Commendation for a group of twenty-five of the best cultivated and flowered Odontoglossum crispum which have appeared for some time. The bulbs were of extraordinary size, firm, and finely-leaved, and excellent in every respect. The spikes and the flowers on them were large and well finished. Mr. Cragg does not use leaf-mould, and any which come into his hands in it are shifted at once. His method is to put one crock in each pot, fill one-third with bracken rhizomes from the peat, then place the plant loosely in the pot with rough peat, and surface this with 1 to 2 inches layer of sphagnum-moss.

Messrs. CHARLESWORTH & CO., Heaton, Bradford, staged a choice group of hybrids, for which a Silver Banksian Medal was awarded. It included the beautiful new purplish-scarlet Sophro-Lælia × heatonensis (see awards), Lælio-Cattleya × La France (C. bicolor × L. tenebrosa), with a very showy lip, the basal half ruby-purple, and rose colour in the front; Cattleya × weedonensis "Kubelik" (granulosa var. × Mendeli), with delicately tinted sepals and petals, and fine purple-veined lip; L.-C. × callistoglossa albens, a pretty light variety; another good form of their showy Cattleya × Iris, the dark scarlet Sophro-Lælia × Veitchi var. Eros, the purplish-scarlet Sophro-Cattleya × eximia, and Cypripedium × Princess (Mons. Coffinet × Fairieanum), a pretty nearly white ground hybrid, larger than the other Fairieanum crosses, and with purplish lines and tinge on the upper sepal and petals.

Messrs. HUGH LOW & Co., Bush Hill Park, in a neat group showed Cattleya Grossii pallida, a nearly white form of their new introduction, which was certificated at the last meeting. The sepals had a greenish, and the lip a pale rose tint; Oncidium incurvum album, O. Forbesii, Cattleya × Firefly, good forms of C. Loddigesii, the yellow Cypripedium insigne Balliæ, and Lælio-Cattleya × intermedio-flava.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr., Mr. Gilbert), showed Cypripedium × Chas. Canham major, a very large yellowish flower, tinged and marked with rose; and C. Charlesworthi, Westfield var., a very darked coloured flower with a fine rose tinted upper sepal, having a base of a purple tint.

Mr. H. A. TRACY, Twickenham, showed a dark form of Liparis tricallosa.

Sir FREDERICK WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), sent Lælio-Cattleya × Constance Wigan (L. xanthina × C. Rex), an effective bright-yellow flower with a purple blotch on the lip; L.-C. × Iva (L. longipes × L.-C. × Schilleriana), resembling L.-C. × intermedio-flava in general appearance, but with dark purple front and edges of the side-lobes of the lip; and L.-C. × Gottoiana.

LEOPOLD DE ROTHSCHILD, Esq., Gunnersbury House (gr., Mr. J. Hudson), showed one of the fine specimens of Dendrobium formosum giganteum, which is so well grown at that place. The plant had leafy pseudo-bulbs 2 feet long, and fifteen immense, pure white flowers with an orange centre (Cultural Commendation).

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr., Mr. Stables), showed Odontoglossum × Hallio-crispum roseum, a showy yellowish-white flower, prettily blotched with reddish-brown, rose-tinted spots, which showed through to the reverse side of the segments, which have also a dark rose flush up the middle.

Messrs. WILLIAM BULL & SONS, Chelsea, showed Cypripedium × Charlesianum Sybil (Leeanum aureum × Sallieri), a fine yellow flower, with the upper part of the dorsal sepal of pure white, the base having a few purplish spots.

Awards.

FIRST-CLASS CERTIFICATE.

Lælio-Cattleya × *Madame Chas. Maron* (C. aurea × L. Digbyana), from Baron Sir H. SCHRODER, The Dell, Egham (gr., Mr. H. Ballantine). A fine bold flower with sepals and petals of a bright light rose, some indication of C. aurea appearing in a yellowish freckling on the petals. The large fringed lip was bright rosy-lilac, with rich yellow disc and some red lines at the base. The cross was first flowered by M. Chas. Maron, of Brunoy, France.

Sophro-Lælia × *heatonensis* (Sophronitis grandiflora × Lælia purpurata), from Messrs. CHARLESWORTH & Co., Heaton, Bradford. A fine addition to our brilliant coloured autumn-flowering hybrids. Sepals and petals purple tinted dark scarlet; lip larger than in most other Sophronitis crosses, reddish-rose with purple lines.

AWARDS OF MERIT.

Lælio-Cattleya × *Isis* "*Rosslyn variety*" (C. × Mastersoniæ × L. pumila), from H. T. PITT, Esq., Rosslyn, Stamford Hill (gr., Mr. Thurgood).—A perfect florist's flower of fine shape, substance, and dwarf stature. In it C. × Mastersoniæ (labiata × Loddigesii), also a finely-formed flower, and one of the earlier Veitchian hybrids, is distinctly traceable. Flower bright rose, with claret-crimson markings on the openly-displayed labellum.

Cattleya × *Firefly* (Dormaniana × Bowringiana), from Messrs. HUGH LOW & Co., Bush Hill Park.—A very floriferous and pretty hybrid. Sepals and petals light rose, lip purple, extended in a long, strap shaped blade, with expanded front lobe, the side lobes clipping the base of the column very small.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq., chairman; and Messrs. H. Balderson, Jos. Cheal, Geo. Woodward, W. Bates, S. Mortimer, A. Dean, Ed. Beckett, H. J. Wright, H. Markham, H. Eslings, G. Reynolds, F. Q. Lane, Jas. Smith, C. G. A. Nix, H. Somers Rivers, A. H. Rivers, and O. Thomas.

Both fruit and vegetables were presented in unusual abundance and excellence, occasioning the awarding of two Gold Medals.

Mr. Goodacre, gr. to the Earl of HARRINGTON, Elvaston, Derby, staged a very fine collection of fruit, including twenty-one bunches of superior Grapes, twelve of which were Muscat of Alexandria, and three each of Black Alicante, Gros Maroc, and Gros Colmar. Fronting the Grapes were ten Melons, five being of The Countess and The Peer, the latter seedling referred to below, all fine, handsome fruits; two Peaches, Barrington and Princess of Wales; Plums, Braby's Greengage, Monarch, and Golden Drop; Pears, Pitmaston Duchess, Doyenné du Comice, and Beurré Fouqueray; and Apples, Gascoigne's Scarlet and Lady Sudeley. The whole of the collection was from under glass. The Hogg Medal was unanimously awarded the exhibitor.

From Mr. W. Fyfe, gr. to Lady WANTAGE, Lockinge Park, Berks, came a singularly extensive, representative, and beautifully staged collection, occupying a great length of tabling. Here there was an entire absence of

formal staging, all dishes being elevated on neat wire stands, and the whole was prettily adorned with coloured tree foliage. The Grapes suspended on vertical boards lifted well above the table consisted of Madresfield Court, Lady Downes, Gros Colmar, well coloured; Alicante, Black Hamburgh, Muscat of Alexandria, very fine bunches; Buckland Sweetwater, and Foster's Seedling, twenty-four bunches in all. Peaches were Sea Eagle, Grosse Mignonne, Bellegarde, Princess of Wales, Barrington, and Dymond; Nectarines Victoria and Humboldt; several good Melons; Plums Monarch, Jefferson, Golden Drop, Pond's Seedling, Late Orleans, &c.; Morello Cherries, Brown Turkey Figs, twenty-four dishes of good Pears, and as many of Apples, making 100 dishes in all. In addition, Mr. FYFE, to show that he was not a mere one-section man, staged a superb collection of vegetables that were to many as attractive as was the fruit. There were fifty dishes, inclusive of fine Standard Bearer, Sutton's A1, and Solid White Celeries, Giant Autumn and other Cauliflowers, good Syon Leeks, superb Intermediate Carrots, equally fine Tender-and-True Parsnips, and Blood-red Beet, Carter's Model and Sutton's Flower of Spring Cabbages, Red do., several Kales, Perfection and other Tomatos, various Cucumbers; Windsor Castle, Abundance, Puritan, The Cropper, and other Potatos; Autocrat Peas, Best-of-All Runners, Turnips, &c. For these fine collections of splendid produce the Society's Gold Medal was unanimously awarded.

To Messrs. DOBBIE & Co., of Rothesay, Scotland, at present belongs the honour of staging what was so readily described as the finest and most beautiful collection of Potatos ever presented at the Drill Hall. There were fifty flat round baskets, each containing forty tubers, each basket a distinct variety. The whole was set up with great taste, and the samples, besides being remarkably even, were as perfect and beautiful as Potatos well could be. These tubers were grown on a recently-turned-up meadow land of a brown light loam, rather thin, and manured lightly with stable-dung, all being grown in Bute. White varieties included Dobbie's Favourite, The Sirdar, Pride of the Ochils, Up-to Date, Puritan, Ringleader, The Crofter Improved Kidney, Daniel's Special, Pride of Tonbridge, and many others. Coloured varieties included Eighty-fold, Yeoman, Purple Perfection, The Dean, Reading Russet, Main Crop Russet, Mr. Bresee, Hero Laddie, and others. A Gold Medal was here unanimously awarded.

Messrs. GREEN & Co, Wisbech, had a collection of 54 dishes of field-grown Potatos for seed purposes, all very clean and even. Their best white varieties were Sir J. Llewelyn, Sharpe's Victor, Evergood, Up-to Date, Sensation, Fylde Wonder, Windsor Castle, The Saxon &c.; and of coloured varieties, Beauty of Hebron, White Elephant, Main Crop Russet, Reading Russet, &c. (Silver Knightian Medal).

Messrs. E. & A. WHITE, Paddockwood, Kent, sent numerous branches of Apple-trees laden with fruit to show crop; also some capital samples on dishes, including the best kitchen varieties (Vote of Thanks).

From Mr. SEWARD, Hanwell, came a good sample of his Tomato Hanwell Victory, regarded as like Chemin Rouge.

Mr. GOODACRE sent bunches of Black Morocco, Diamond Jubilee, and a seedling Grape, berries of all being long and oval. The first-named, though least ripe, had the best flavour, but it was desired the seedling be seen again.

Messrs. JAS. VEITCH & SONS sent a large fruiting branch of a new Damson, The Langley; fruits black and size of Orleans Plum, a wonderful cropper, but yet far from being ripe. To be seen later. The firm also sent a new Pear.

Mr. SLADE, gr., Poltimore Park, Exeter, showed Pear Senateur Vaisse, thought to be Fondante d'Automne.

Mr. M. BANKS, Wimborne, had a couple of ripe Vegetable-Marrows, product of crossing Long Green and the Orange Gourd (Vote of Thanks).

From HOBBIES, LTD., Wisbech, came a plant and dish of fruit of the Autumn Strawberry, St. Antoine de Padoue, showing great productiveness (Vote of Thanks).

AWARDS OF MERIT.

Melon, The Peer.—A so id white fleshed variety, having rich flavour. From the Earl of HARRINGTON (gr., Mr. J. H. Goodacre).

Pear, Michaelmas Nelis.—A sweet and pleasantly flavoured variety, flesh soft and melting. See fig. 90, above; also fuller description in *Gardeners' Chronicle*, Oct. 12, 1901, p. 271. From Messrs. G. BUNYARD & Co.

NATIONAL CHRYSANTHEMUM.

OCTOBER 7, 8, 9.—The first show of the present season, under the auspices of the National Chrysanthemum Society, and the last but two that will be held in the Royal Aquarium, Westminster, took place on the above dates. There was a very good display of exhibits in the competitive classes, and the trade contributed many groups of plants and flowers, also hardy fruits.

NEW CHRYSANTHEMUMS.

The Floral Committee awarded First-class Certificates to the three following varieties:—

Chrysanthemum Black Prince.—A Japanese flower with smooth petals, of very deep crimson colour, with amber reverse, which shows effectively in the centre florets. A first class early flowering, decorative variety.

C. Nelly Blake.—A light red-coloured Japanese, with buff reverse, of much merit for early decoration. The two varieties mentioned were shown by Mr. G. SHAWYER, Cranford, Middlesex.

C. Mary Perkins.—A Japanese flower of exhibition size. Colour soft but rich yellow, with drooping florets. Shown by Mr. H. PERKINS, Greenlands Gardens, Henley-on-Thames.

COMPETITIVE CLASSES.

In the class for a group of Chrysanthemums and foliage plants arranged for effect, Mr. W. Howe, gr. to Lady TATE, Park Hill, Streatham Common, won 1st prize from Mr. R. C. PULLING. Mr. HOWE'S group contained Chrysanthemum plants with excellent blooms, and for the rest it consisted of Codiæums, Palms, Ferns, &c.

Of four exhibits in the principal class for cut blooms, namely that for twenty-four Japanese, the best came from Mr. J. Brookes, gr. to W. J. NEWMAN, Esq., Totteridge Park, Totteridge, Herts. Most of the blooms were of well known late flowering varieties of large size, but few of them of good colour. The brightest were Mrs. Greenfield, yellow; Chas. Longley, Soleil d'Octobre, and M. L. Remy. The white varieties included Mme. Gustave Henry, Lady Crawshaw, Alice Byron, and F. Molyneux; 2nd, Mr. G. Impney, gr. to H. MANSFIELD, Esq., The Lodge, Abbot's Road, New Barnet.

The best collection of twelve Japanese blooms, distinct, was a very good one from Mr. H. Perkins, gr. to the Hon. W. F. D. SMITH, M.P., Greenlands, Henley-on-

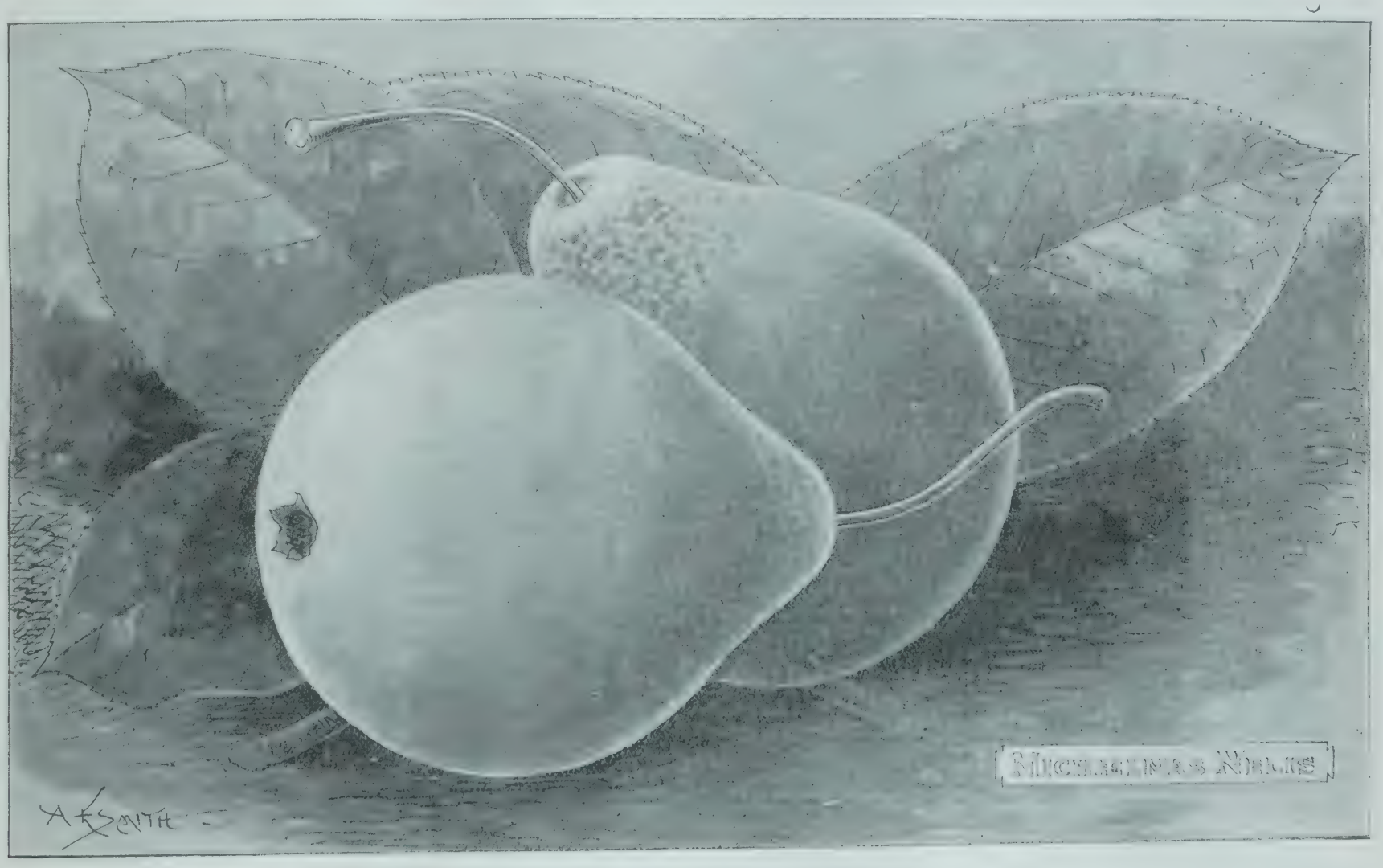

FIG. 90.—PEAR MICHAELMAS NELIS.
Obtained an Award of Merit at the Meeting of the Royal Horticultural Society on Tuesday last.

Thames. He had an extremely fine bloom of Sir William Acland, a yellow ground marked with red. The rest were Mrs. White Popham, Jane Molyneux, Graphic, Mrs. J. Bryant, Lady Acland, George Laurance, Madame A. Capitans, Mary Perkins, and three seedlings; 2nd, Mr. JAS. BROOKES.

Mr. D. B. CRANE won 1st prize for six bunches of Pompon-flowering varieties; and Mr. ERIC F. SUCH, nurseryman, Maidenhead, was 2nd.

The larger class for twelve bunches of Pompons was won by Mr. Chas. Brown, gr. to R. HENTY, Esq., Langley House, Abbots Langley; and Mr T. L. Turk, gr. to T. BONEY, Esq., Southwood House, Highgate, 2nd.

BLOOMS SHOWN IN VASES, &C.

The best vase of six Japanese blooms of one variety (yellow) only, was shown by Mr. R. C. PULLING, Monkham's Nurseries, Woodford, Essex. The variety was Mrs. T. W. Pockett, and the blooms were very fine ones. The variety Mary Perkins was placed 2nd.

In a similar class for a white variety, Mr. G. Impney, gr. to H. MANSFIELD, Esq., The Lodge, Abbot's Road, New Barnet, was 1st, showing Madame Gustave Henry; and in a further class for six blooms of a variety other than yellow or white, the 1st prize was awarded to the variety Lily Mountford, shown in satisfactory character by Mr. R. C. PULLING.

Hand-baskets of Chrysanthemum blooms were not better than we have seen them previously. The 1st prize was won by Mr. M. V. SEALE, Vine Nurseries, Sevenoaks. More interesting were some baskets arranged with "garden flowers." The 1st prize exhibit, from Mr. NORMAN DAVIES, Framfield Nurseries, Sussex, contained Michaelmas Daisies, Golden Rod, herbaceous Phlox, &c., and looked very pretty, but the atmosphere of the building soon caused them to wither, and on the second day they looked miserable indeed.

There was also a class for baskets of Roses, and Mr. E. F. SUCH, Maidenhead, showed a very pretty arrangement for 1st prize.

Class 13 was for twelve bunches of early-flowering, distinct varieties of Chrysanthemums, and the 1st prize was gained by Mr. D. B. CRANE. The varieties were Ivy Stark, Madame Marie Massee, Horace Martin, Mrs. Cullingford, Hewn Coon, François Vuillermet, Harvest Home, Ralph Curtis, rather thin, showing centre; Lemon Queen, rich golden colour; Crimson Marie Massee, Bronze Prince, and Mdlle. Grunderdeon. [No labels were attached to these, but the names were scribbled upon the paper which covered the tables.]

The best early salmon-pink or rose-coloured variety was Madame Marie Massee, and the best early yellow-flowered variety was apparently Horace Martin, but no label was attached. There were classes for other colours in these early varieties, which we think is desirable at this first show. Mr. D. B. CRANE won 1st prize for a collection of twelve early-flowering Pompons.

There were seven exhibits of tables decorated with Chrysanthemums as for a dinner, and the best was adjudged to be one arranged by Mr. F. G. OLIVER, 97, Tollington Park, N. Miss C. B. COLE had the best exhibit of three Epergnes, arranged with Chrysanthemums; and Mr. A. Robinson, gr. to F. J. YARROW, Esq., Mitford House, St. John's Wood, won 1st prize for a single vase of Chrysanthemums.

There were classes also for amateurs, and in these there was good competition.

VEGETABLES.

In the classes arranged by Mr. H. Deverill for vegetables, the 1st prize in that for a collection was won by Mr. Ed. Beckett, gr. to Lord ALDENHAM, Aldenham House, Elstree, who had splendid produce.

The principal exhibitors in the classes for Onions and other vegetables were Mr. H. Folkes, gr. to the Right Hon. T. F. HAKEY, M.P., Gaddesden Place, Hemel Hempstead; Mr. BECKETT, Mr. FRANK ALLFORD, Earlstoke, Devizes; Mr. J. BOWERMAN, Hackwood Park Gardens, Basingstoke; Mr. C. Brown, gr. to R. HENTY, Esq., Langley House, Abbot's Langley; and Mr. R. Lye, gr. to W. GILLIAN, Esq., Sydmonton Court, Newbury.

NON-COMPETITIVE EXHIBITS.

These were numerous, and GOLD MEDALS were awarded to the following exhibitors:—Mr. H. J. JONES, Ryecroft Nurseries, Hither Green, Lewisham, who showed Chrysanthemum plants and blooms, Michaelmas Daisies, &c.; Mr. W. J. GODFREY, Exmouth Nurseries, Devon, for Chrysanthemums, Carnations, Fuchsias, &c.; HOBBIES, LTD. (Mr. JNO. GREEN), Dereham, Norfolk, for Dahlias; Messrs. HUGH LOW & CO., Bush Hill Park Nurseries, Enfield, for Lilium longiflorum, Begonias Gloire de Lorraine, Turnford Hall var., Crotons, &c., also a collection of Apples; Messrs. H. CANNELL & SONS, Swanley, Kent, for a group of Cannas and Dahlias; and Mr. H. BERWICK, Sidmouth, for fruit.

SILVER GILT MEDALS were awarded to Mr. E. F. SUCH, Maidenhead, for a group of early flowering Chrysanthemums; Mr. R. FOSTER, Nunhead Cemetery, for a group of Chrysanthemum plants in flower; Messrs. W. CUTBUSH & SONS, Highgate, London, for Dahlias; Messrs. S. SPOONER & SONS, Hounslow, for hardy fruits; and Mr. J. B. COLWILL, also for hardy fruits.

The following exhibitors were awarded SILVER MEDALS: Mr. G. G. SHAWYER, Cranford, Hounslow, for a group of cut Chrysanthemums; Mr. H. DEVERILL, Banbury, for groups of zonal Pelargoniums, and hardy flowers; Messrs. JOHN PEED & SONS, West Norwood, for cut flowers of tuberous Begonias; and smaller Silver Medals to Mr. J. WILLIAMS, Ealing, and Mrs. HODGKINSON, West Didsbury, in the former case for table decorations, and in the latter for skeletonised leaves.

YORKSHIRE HARDY FRUITS.*

MR. GAUT remarked that Yorkshire was a large county, and hardy fruits of all kinds are found growing under very varied conditions, and it is interesting to note the effects of the conditions upon kinds and varieties of fruits for the past three years. He said, "I have been engaged in studying the Yorkshire fruit and collecting reports, and these researches have brought out some curious facts. We often hear experts say, 'Such and such varieties are suitable to your particular climate or district.' I have come to the conclusion that this advice must often be taken with a grain of salt. For instance, Cellini Pippin Apple is a great favourite round Leeds, whilst in places in the north of the county the tree cankers so badly that it is not worth growing. Blenheim Orange Pippin is reported from 41 stations, and from 18 of these as unsatisfactory, and the nature of the soil has very little to do with this. The proportion stands thus: 9 satisfactory, 11 unsatisfactory, medium soil. 7 3, light soil, 7·4; Lord Suffield, 60 stations, heavy 15·6 (it is often recommended specially for light warm soils). medium 10·8, light 16·5. Dumelow's Seedling is unsatisfactory in 5 stations out of 17; Warner's King in 7 out of 47; Cox's Orange in 13 out of 44; King of the Pippins in 11 out of 36; and Ribston Pippin in 15 out of 37. Fruit merchants in Leeds say that they are unable to obtain the Ribston Pippin now the trees are fast dying out. If something could be done to save this variety in the county, it would be a great gain. Even at Ribston Park young trees newly planted soon begin to canker. Correspondents in the *Gardeners' Chronicle* have lately been asking about the Bismarck Apple. Reports have been received from 15 stations in Yorkshire, and only one is unfavourable. Duchess of Oldenburg, a handsome Apple, is a favourite amongst market growers, fetching a fair price, but its flavour is very moderate, and should not be classed as a dessert variety. Amongst Pears it is curious to note the Duchess d'Angoulême, of which reports have been received from 14 stations, 10 of which are given as satisfactory. Experts who certainly know Pears well state that in the south and midlands it is of very inferior flavour.

"The Transparent Gage Plum is said not to be a suitable variety for this county. When compared with the Green Gage, the proportion for the former is 10 satisfactory, and 3 unsatisfactory; and for the Green Gage, 13 satisfactory, as against 6 unsatisfactory. Many more instances might be quoted if space allowed. The county is not considered favourable for the cultivation of fruit, and wholesale dealers in fruit in Leeds do not report favourably respecting the fruits sent to market; still there are many districts where fruit-growing might be established with a fair prospect of success. Shelter in the north is one of the chief conditions of successful cultivation. People often talk about planting fruit-trees in hedges; well, I should say, 'Keep them out up here.' Samples sent into the market are often bad enough as it is, and it is only the best which fetch the best prices, therefore the most favourable conditions are necessary."

NATIONAL AMATEUR GARDENERS' LIVERPOOL BRANCH.

AN interesting meeting was held at the Common Hall, Hackins Hey, on the 2nd inst, and the attendance was very good. Mr. ELLISON presided. The lecturer for the evening was Mr. R. PINNINGTON, who demonstrated with root and branch the proper method of pruning fruit trees. Referring to planting, he deprecated the deep planting so often found, and gave illustrations of the good results which can be accomplished by removing some of the surface soil, and thus bringing the roots into a warmer medium. Other useful hints were afforded on the ripening of fruit by wrapping them in tissue paper, and placing them in slight warmth, and thus enabling a long succession of fruits to be obtained, besides improving flavour. The culture of Lilies was next dealt with, the subject matter of which may be summarised, viz.:—Pot the bulbs early in a compost consisting of sound fibry turfy loam, some leaf-soil, course sand, finely broken sandstone, a sufficient space being allowed for a dressing. Instead of a greenhouse temperature until growth commenced, the lecturer advised the grower to plunge the Lily pots in coal ashes in a cold frame, protecting the bulbs against frosts, and affording little or not any water till growth is observed. Roses were touched upon, the strong point being that all weakly wood not required another season, should now be removed. *Orchid.*

* A Lecture by Alfred Gaut to Leeds Paxton Society, October 4, 1902.

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

THE first fortnightly meeting of the winter session was held in the Abbey Hall, and was well attended Mr. G. Stanton presided. The subjects for the evening were, "Melons in Pots," and "Stoking." The former was introduced in a very practical manner by Mr. E. F. Exler, gr., East Thorpe, Reading under the following headings:—Soils, Affording Water to Plants, Syringing, Stopping, Ventilation, and Shading Plants; Insects, Diseases, and Varieties. The subject of Stoking was taken up by Mr. E. Fry, Greenlands Gardens, Reading, who made some sensible remarks upon the stoke-hole. boilers, fuel, &c. The discussions were well sustained by Messrs. S. Ager, Clinch, Townsend, Powell, D. Ager, Neve, Judd, Fry, Cox, Bassell, Cretchley, Stanton, House, and Lever.

Great interest was created in an exhibit of Cactus Dahlias staged by Mr. C. P. CRETCHLEY, gr. at The Honeys, Twyford. The varieties were Lord Roberts, Rosine, Vesta, J. W. Wilkinson, W. Jowett, J. Weir Fife, Cornucopia, Mrs. E. Mawley, and Mrs. Carter Page.

Mr. H. HOUSE, gr., Oakfield, Reading, staged a collection of Apples and Pears; and Mr. G. DURRANT, gr. at Preston Lodge, Reading, specimens of various types of Dahlias. Seven new members were elected.

The subject for the meeting to be held on October 13 is "Flowering Trees and Shrubs," illustrated by limelight pictures, by Mr. G. Gordon, V.M.H., Editor of the *Gardeners' Magazine.*

YORKSHIRE FUNGUS FORAY.

THE persistent efforts of the various officials and members of old-standing to make this annual ramble after fungi a success, were rewarded by the advent of new members hailing from London and other far off parts of the country. It is only on very rare occasions that the fungi characteristic of open pastures are much in evidence in this country, and the present season proved to be one of those much-desired occasions, species of Nolanea Leptoina, and more especially Hygrophorus, being fairly abundant. One very fine species, Hygrophorus bicolor, Karsten, distinguished from H. pratensis by the chalk-white stem gradually tapering downwards, was met with for the first time in Britain. An aquatic fungus superficially resembling a species of Coryne, growing attached to moss on a submerged stone in a stream, does not agree with any known genus. Again, a very beautiful species of Inocybe, pure white with reddish gills, does not appear to have been previously noticed. Several species were added to the already long list of Yorkshire fungi. The genus Clavaria was well represented, whereas only a single specimen of the usually ubiquitous Armillaria mellea was seen. Just over 350 species were noted during the meeting.

Papers bearing the following titles were read:—"The Economic Uses of Fungi," by J. H. Holland, of the Kew Museum, illustrated by diagrams and specimens. "The Use of Photography in connection with the Study of Fungi," by A. Clarke, illustrated by numerous stereo and other photographs. "The Modern Method of Studying Agarics," by the writer of this notice. A beautiful collection of coloured drawings of microscopic and other fungi were exhibited by C. Crossland, F.L.S. Excellent headquarters, situated in the beautiful and romantic valley of Eskdale, near Whitby, had previously been secured, thanks to the untiring energy of the Secretary of the Yorkshire Naturalists' Union, W. Denison Roebuck, F.L.S., and the cream, butter, bread, &c., was a revelation to those accustomed to the substances known by similar names in London.

Helmsley, near Kirbymoorside, was selected as the locality for next year's foray, commencing on Sept. 26. *Geo. Massee.*

CATALOGUES RECEIVED.

FOREIGN.

M. M. BARBIÈRE ET CIE., 16, Route d'Olivet, Orleans, France.—Fruit Tree Stocks. Coniferous and other Trees, Shrubs, Climbers, New Plants, &c, Trade List.

CARL SPRENGER, Vomero, Naples, Italy—Rare, new, or old species and varieties of Plants. Six separate lists in the English language.

ERNEST BENARY, Erfurt, Germany—Pansy Seeds, ditto Sweet Peas, Radish Crimson Giant Forcing, Flower Seed Novelties (in English).

FORECAST OF GREENWICH WEATHER.

1. Mean temp. of Autumn (Sept.—Nov.). Not over 51°, and probably under average (50·2°). (Previous extremes 46·8°, and 53·9°).
2. Frost days before Jan. 1, 1903. Over 20, average 18, extremes 38 and 3.
3. At least two out of the three winter months severe. Winter season as a whole severe, but not excessively severe.

Alex. B. MacDonall, October 1, 1902.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period Sept. 28 to Oct. 4, 1902. Height above sea-level 24 feet.

1902. September 28 to October 4.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1 foot deep.	At 2 feet deep.	At 4 feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 28	E.N.E.	55·9	50·7	58·2	46 0	...	55 0	56·1	53 5	35 5
Mon. 29	E.N.E.	51·9	49·0	55 9	45·5	...	54·5	56 0	53·3	35 5
Tues. 30	N.E.	52·4	47·9	56·5	47 5	...	53 8	55·6	56 2	39·0
Wed. 1	E.N.E.	55·4	50·6	59·2	50·0	0·03	54·0	55·3	56·0	46 2
Thu. 2	E.N.E.	51 9	48 9	53·1	50 2	0·02	54·1	55·3	56·0	45 8
Fri. 3	E.N.E.	44·7	41 2	49 1	42 4	...	52·3	55·0	55 8	33·2
Sat. 4	E.N.E.	45·9	42·1	48·6	43·2	...	51 5	53·8	55·7	32 0
Means	...	51·2	47·2	54·4	45·4	Tot 0·05	53·6	55·3	56·1	38·2

Remarks.—The days have been dull and dark, with cold, north-easterly winds.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending Oct. 4, is furnished from the Meteorological Office :—

"The *weather* during this period differed considerably in the various districts, but was mostly fair in the north-west, west, and south-west, and somewhat unsettled in the south-east and east. In the latter regions slight drizzling rain was of rather frequent occurrence, but in the former many localities were quite rainless.

"The *temperature* was below the mean in most districts—as much as 4° in England, S , but just equalled it in Scotland, E., and was a little above it in Scotland, N. and W., and in Ireland, N. The highest of the maxima were registered either on Sunday or Wednesday, and varied from 72° in Scotland, N. and Ireland, S., and 70° in England, S.W., to 61° in England, N.E. Towards the end of the week the maxima were but little above 50°, and at some stations below that value. The lowest of the minima were recorded on Friday or Saturday, when the thermometer fell to 23° in Scotland, E. (at Braemar), 28° in Scotland, N., 30° in England, N.W., and 31° in the Midland Counties ; elsewhere the lowest readings ranged from 32° in England, E. to 40° in England, N.E., and to 42° in the Channel Islands.

"The *rainfall* was less than the mean in all districts, especially over the north of Scotland, in Ireland, and the western half of England.

"The *bright sunshine* exceeded the normal amount in some western districts and in Scotland, N., but was deficient elsewhere. The percentage of the possible duration ranged from 42 in England, S.W., 36 in the Channel Islands and Ireland, S., and 34 in England, E. and Scotland, N., to 19 in England, S. and the north-eastern parts of Great Britain."

THE WEATHER IN WEST HERTS.

THE change to colder weather, which began on the 28th ult., set in very suddenly. For instance, the highest temperatures in the thermometer screen, which had during the previous week continued from 4° to 10° above the average for the time of year, were in the past week from 2° to 12° below the average. The lowest night readings were on the other hand by no means exceptional—the exposed thermometer on no night showing more than 3° of frost. The ground temperatures have been falling throughout the week, and are now about 1° colder than is seasonable, both at two feet and one foot deep. An insignificant amount of rain fell during the night of the 5th, but previous to that date no rain at all had fallen for nearly three weeks. Percolation through the bare soil gauge ceased altogether on the 2nd, showing how dry for the middle of autumn the ground must have now become. Since the month began the weather has been very gloomy—the average record of bright sunshine amounting to only about 1¼ hours a day. The winds have been very light; the mean rate of movement of the air at 30 feet above the ground being less than three miles an hour, and on one day less than a quarter of a mile an hour. The atmosphere remained unusually dry in the early part of the week, but during the last few days it has become more humid. *E. M., Berkhamsted, Oct. 7, 1902.*

MARKETS.

COVENT GARDEN, Oct. 9.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. ED.]

CUT FLOWERS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Arums, per dozen	3 0	4 0
Asparagus Fern, per bunch ...	0 6	1 6
Asters, per dozen bunches ...	2 0	8 0
Bouvardias, per dozen bunches.	6 0	8 0
Chrysanthemum, various, per doz. bunches ...	3 0	12 0
Coreopsis, per doz. bunches ...	0 6	1 0
Dahlias, per doz. bunches ...	3 0	6 0
Eucharis, p. doz.	1 0	2 0
Carnations, bnch.	1 0	2 0
Gaillardia, dozen bunches ...	1 0	1 6
Gladiolus Brenchleyensis, per bunch... ...	1 6	2 6
Lilium album, doz. blooms	1 0	2 0
— Harrisii, per bunch ...	3 0	4 0
Lobelia, Red, per dozen bunches	4 0	6 0
Lily of the Valley, per dozen bunches ...	6 0	18 0
Marguerites, Yellow, p. dz. bchs.	1 0	1 6
Michaelmas Daisies, per dz. bunches ...	4 0	6 0
Montbretias, per dozen bunches ...	4 0	6 0
Pelargoniums, Scarlet, dozen bunches... ...	2 0	3 0
Phlox, per dozen bunches ...	4 0	6 0
Roses, Mermet, p. bunch... ...	1 0	2 0
— red, p. dozen bunches ...	3 0	8 0
— various, doz. bunches ...	3 0	18 0
Smilax, per doz. trails	1 6	2 6
Sunflowers, per doz. bunches ...	1 0	2 0
Tuberoses, per doz. blooms ...	0 3	0 4
Violets, per dozen bunches ...	1 3	1 6
— Parma, p.bch.	1 6	2 0
Winter Cherries, per dz. bunches	4 0	8 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen ...	2 0	—
— Jerusalem, per sieve ...	1 6	—
Aubergines, doz.	2 0	—
Beans, dwarf, per sieve	3 6	4 0
— Scarlets. bus.	0 6	1 0
Beetroots, bushel	1 0	1 6
Cabbage, p. tally	1 6	3 0
Carrots, per doz. bunches ...	1 6	2 0
— bag (washed).	2 6	2 9
Cauliflowers, per dozen	0 6	1 6
Celery, per dozen bundles... ...	10 0	12 0
Cress, per dozen punnets ...	1 3	-
Cucumbers, doz.	2 0	3 0
Endive, new English, per score	1 0	1 6
Garlic, per lb. ...	0 3	—
Horseradish, foreign, p. bunch	1 6	1 9
Leeks, 12 bunches	1 0	1 6
Lettuces, Cos, per score	0 9	1 6
— Cabbage, per dozen	0 6	0 9
Marrows, Vegetable, dozen ...	1 0	1 6
Mint, doz. bunches	1 9	—
Mushrooms, house, per lb.	1 9	2 0
Onions, new, green, doz. bunches	1 6	2 0
— bag	3 0	3 6
— foreign, case	5 6	6 0
— picklers, per sieve	3 0	—
Parsley, doz. bun.	1 0	1 6
— sieve	0 6	0 9
Parsnips, per bag	2 6	3 0
Potatos, per ton .	65 0	90 0
Radishes, p. doz. bunches ...	0 6	1 0
Salad, small, punnets, per doz....	1 3	—
Shallots, per doz.	0 1½	—
Spinach, English, bushel	1 6	2 0
Tomatos, English, per doz. lb.	3 0	4 0
— Channel Ilds. per lb. ...	0 2½	0 3
Turnips, new, per dozen ...	2 0	2 6
— bags	2 6	3 0
Watercress, per doz. bunches...	0 3	0 6

PLANTS IN POTS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Adiantums, per dozen	4 0	8 0
Aralias, per doz.	4 0	8 0
Arbor Vitæ, per dozen	9 0	18 0
Aspidistras, per	18 0	36 0
Asters	2 0	4 0
Aucubas, per doz.	4 0	8 0
Campanula, per dozen	2 0	6 0
Chrysanthemum, various	3 0	18 0
Coleus, per dozen	3 0	4 0
Crotons, per doz.	13 0	30 0
Dracænas, var., per dozen ...	12 0	30 0
Evergreen, per dozen	3 0	18 0
Ericas, per dozen	9 0	12 0
Euonymus, vars., per dozen ...	4 0	6 0
Ferns in variety, per dozen ...	4 0	30 0
Ficus elastica, per dozen	9 0	24 0
Palms, various, each	1 0	30 0
Pteris tremula, per dozen	4 0	8 0
— Wimsetti, per dozen	4 0	8 0
— major, per dz.	4 0	8 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, English, per sieve ...	2 0	4 0
— Blenheims, per bushel ...	6 0	7 0
— Cox's Orange Pippin, sieve.	4 0	7 0
— King's, bush.	6 0	7 0
— Worcester Pearmain, per sieve	4 0	5 0
— Suffields and various cookers, per bush.	3 6	7 0
Bananas, bunch	6 0	10 0
— loose, dozen	1 0	1 6
Blackberries, peck	3 0	3 6
Cobnuts, per lb. .	0 3	0 3½
Cranberries, American, qt....	0 6	—
Figs, per dozen ...	1 0	1 6
— Italian, box or case	1 6	3 0
Filberts, per lb...	0 2	—
Grapes, new Hamburgh, per lb.	1 6	2 0
— — B., per lb.	0 4	0 8
— Belgians, per lb. ...	0 6	0 11
— Alicante, lb. .	0 6	1 0
— Colmars, lb. .	0 10	1 6
— Muscats, A., lb.	2 0	3 0
— — B., per lb.	0 9	1 6
Lemons, per case	16 0	20 0
Melons, English, each	1 0	2 0
Nectarines, A., per dozen ...	8 0	12 0
— B., per dozen	2 0	4 0
Oranges, case.....	13 6	23 0
Peaches, A., doz.	8 0	12 0
— B., per dozen	2 0	5 0
Pears, per sieve...	1 6	4 0
— stewing, bkt.	3 0	4 0
Pines, each ...	3 0	5 0
Plums, sieve ...	2 6	4 0
Quinces, case ...	3 0	—

REMARKS.—Almeira Grapes fetch from 12*s.* to 20*s.* per barrel; Californian Peaches, per box, 6*s.*; Pomegranates, per case, 11*s.*; Corn cobs, per doz., 1*s.*; American Apples, 20*s.* to 30*s.* per barrel. There are a few Persimmons from the South of France; also English Walnuts, unshelled, which fetch 6*s.* per bushel. Damsons, if good, sell for 6*s.* to 7*s.* per sieve; prime Plums have not as yet commenced. Some large-sized home-grown Horseradish fetches 3*s.* per dozen sticks; English Onions, per cwt., 5*s.*

POTATOS.

Various samples, 65*s.* to 90*s.* per ton. *John Bath, 32 & 34, Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

GLASGOW, *October* 8.—The following are the averages of the prices during the past week :—Apples, American, best, 18*s.* to 28*s.* per barrel; ordinary, 14*s.* to 18*s.* do.; English, 15*s.* to 22*s.* per cwt.; Pears, Canadian Bartletts, 5*s.* to 6*s.* per case; Duchesse and Clairgeau, 3*s.* per case; Onions, Valencia, 5*s.* 6*d.* to 6*s.* 6*d.* per cwt.; Tomatos, Scotch, 6*d.* to 8*d.* per lb.; do., English, 3*d.* to 6*d.* do.; do., Guernsey, 5*d* to 6*d.*; Lemons, Naples, 15*s.* to 20*s.* per case; Grapes, 10*d.* to 1*s.* 6*d.* per lb.; do., Almeira, 10*s.* to 18*s.* per barrel; Melons, 7*s.* 6*d.* to 18*s.* per case; Pomegranates, 5*s.* to 6*s.* per case.

LIVERPOOL, *October* 8.—*Wholesale Vegetable Market.*—Potatos, per cwt.: **Kidneys**, 2*s.* 2*d.* to 2*s.* 10*d.*; **Main Crop**, 3*s.* to 3*s.* 6*d.*; **Up-to-Date**, 2*s.* to 2*s.* 4*d.*; **Bruce**, 2*s.* 2*d.* to 2*s.* 6*d.*; **Turnips**, 6*d.* to 8*d.* per twelve bunches; **Swedes**, 1*s.* 2*d.* to 1*s.* 4*d.* per cwt.; **Carrots**, 6*d.* to 8*d.* per twelve bunches; do., 2*s.* to 4*s.* per cwt.; **Onions, English**, 5*s.* to 6*s.* per cwt.; do., foreign, 3*s.* to 3*s.* 9*d.* per bag; **Parsley**, 4*d.* per dozen bunches; **Cucumbers**, 1*s.* 6*d.* to 3*s.* per doz.; **Cauliflowers**, 8*d.* to 1*s.* 3*d.* do.; **Cabbages**, do.; **Celery**, 9*d.* to 1*s.* 6*d.* do. *St. Johns:* **Potatos**, 11*d.* per peck; **Grapes, English**, 1*s.* 6*d.* to 3*s.* 6*d.* per lb.; do., foreign, 4*d.* to 6*d.* per lb.; **Pineapples, English**, 5*s.* to 6*s.* each; **Apples**, 2*d.* to 6*d.* per lb.; **Pears**, 3*d.* to 6*d.* do.; **Tomatos**, 3*d.* to 8*d.* do.; **Damsons**, 4*d.* to 6*d.* do.; **Cucumbers**, 3*d.* to 4*d.* each; **Mushrooms**, 6*d.* to 8*d.* per lb.

SEEDS.

LONDON, *October* 8.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., state that there were but few buyers on to-day's seed-market, with not much business passing. Meanwhile there is a growing disposition to speculate in Clover seeds generally, and whilst White Seed in particular has advanced during the last few days fully £10 per ton. Alsyke, Red, and Trefoil keep firm. There is no alteration in Ryegrasses, but Cocksfoot still tends upwards. Mustard and Rapeseed realise last week's currencies. Seed Rye and Winter Tares favour buyers. Canary-seed is quiet but steady; Hempseed, however, comes cheaper. As regards Blue Peas and Haricot Beans, the supply continues moderate, and full prices are realised.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending Oct. 4, 1902, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return :—

Description.	1901.	1902.	Difference.
	s. d.	s. d.	s. d.
Wheat	25 8	25 10	+ 0 2
Barley	26 3	25 11	- 0 4
Oats	17 7	17 6	- 0 1

ANSWERS TO CORRESPONDENTS.

*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

BOOKS: *W. P. L. & S. Villa Gardening*, by Ed. Hobday. (London: Macmillan & Co., St. Martin Street, W.C.).—*S.* Next week.

CHRYSANTHEMUM LEAVES DISEASED: *Perplexed.* The appearances observed are dissimiliar to those of the rust, and we hope to afford you an answer, after examination.

CLEMATIS JACKMANI DYING: *Anxious One.* With the exception of mentioning the fact that an electric lamp surmounts the arch, you afford no information, and we are unable to account for the death of the plant, unless the electrical conductor is in contact with the iron-work of the arches. An examination should be made.

COB NUTS: *G. Musson.* Spread the nuts thinly in an airy room, shed, or empty vinery till the outer husk is dry, turning the nuts over a few times, then place them lightly in clean large flower pots, whelming each pot with another somewhat smaller, and place them on the floor of a cool dryish cellar, and if the cellar has an earthen floor, so much the better. A slight sprinkling of salt will preserve the nuts from mildew. By this means nuts may be kept in good condition till February.

CUCUMBER: *Lord L.* A case of fasciation. We have several extraordinary instances this week.

FRUIT BOTTLING CO.: *T. A.* The address of the company is not known to us, and we would suggest your advertising your wants in the *Gardeners' Chronicle.*

FUNGUS ON ARABIS LEAVES: *R. W. R.* Spray with sulphide of potassium in the proportion of ½ oz. in 1 gallon of water.

GAS LIME: *C. R.* In a fresh state as it comes from the gas purifier it is inimical to plant life, but after exposure to the air, or when mixed with the soil in digging and trenching, the ground being left uncropped for three or four months afterwards, it is harmless at the rate of two bushels per rod of ground, or in compost heaps.

GRAPES PUNCTURED: *A. A., Uxbridge.* Due to mite punctures when the fruit was quite young.

LEAVES OF PALM DISFIGURED: *T. L. J.* The pest is Graphiola phœnicis, a minute fungus. Spray the entire plant with soft-soap and water, to which add a little paraffin, and rub the diseased leaves with same solution.

LILIUM CANDIDUM: *R. A. H.* The photograph is being kept for consideration, and we will let you know the result shortly.

MANURE FOR MAIDENHAIR FERNS: *Ignoramus.* The mildest kind of manure-water, as for example, that made from rotting tree leaves or spent Mushroom-bed dung, infused in a good deal of rain water, and allowed to stand to get clear, is strong enough. The hardening your "soft" Maidenhair Ferns must be brought about by affording air rather plentifully, with but little or no shading.

MASSACHUSETTS: *Fairfax.* The winters are colder and the summers are hotter than those seasons in this country, and this fact has to be considered in many matters connected with gardening. Most kinds of hardy fruits grown in these islands succeed there, together with others from more northern climates. Many species of plants which may be left in the open ground here in the winter, must be afforded considerable protection there; such, for example, as Roses, Celery, Cabbages, Broccoli, Cauliflowers, Parsley. Grapes ripen, particularly the native species and hybrids, out-of-doors. Glasshouses must be well provided with the means of heating, and as an aid to economy in stoking, the floors are sometimes put 2 to 3 feet below the ground-level. Steam is employed in preference to water-heated apparatus; and the amount of bright sunlight in the winter months enables the gardener to grow and force salad plants, Roses, &c., more successfully than we can accomplish under our cloudy skies.

NAMES OF FRUITS, ETC.: *We are desirous to oblige our correspondents as far as we can, but the task is becoming too costly and too time-consuming for us to continue it without some restrictions. Correspondents should observe the rule that* **not more than six varieties** *be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. The fruits should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.*—*J. B.* 1, Golden Spire; 2, Northern Greening; 3, Reinette Grise; 4, not known; 5, Hawthornden; 6, Hunt's Deux Ans.—*W. M.* 1, Domino; 2, Grenadier; 3, Lord Lennox; 4, Pitmaston Nonpareil; 5, Baxter's Pearmain; 6, Bedfordshire Foundling.—*A. C.* The fruits were all small, they were badly packed, and carelessly labelled. The Apples are:—1, Holland Pippin; 2, Mère de Ménage; 3, Lord Suffield; 4, Winter Greening; 5, Rhode Island Greening; 6, Hawthornden.—*A. D.* You sent thirteen fruits, more than double the number allowed; the majority are, however, so poor and out of character that they cannot be recognised; the others are as follows:—1, Dr. Lentier; 2, Beurré Hamecker; 3, Epine du Mas; 7, Beurré Hardy; 8, Beurré Robert; 13, Hacon's Incomparable.—*C. W.* 1, Keswick Codlin; 2, Yorkshire Beauty; 3, Small's Admirable; 4, Stone's or Loddington; 5, Please do not send specimens the size of Crabs; 6, Minchul Pippin. — *Norfolk.* 1, Newtown Pippin; 2, Claygate Pearmain; 3, Sturmer; 4, Pitmaston Duchess; 5, Durondeau; 6, Marie Louise d'Uccle.—*Mrs. Kelsall, Winlaw.* 1, Thompson's; 2, Marie Louise; 3, King of the Pippins.—*Norwood.* 1, Beurré Diel; 2, Jersey Gratioli; 3, Beurré Capiaumont; 4, Louise Bonne of Jersey; 5, Nouveau Poiteau; 6, very small, not recognised.—*J. E. Dawson.* 2, Cheshunt Pippin; 3, Maltster; 4, Lord Derby; 5, Broad Eye Pippin; 7, Woodcock; 9, Blenheim Orange; 10, Kentish Fillbasket; 11, Lady Henniker; 12, Annie Elizabeth; 13, Fearn's Pippin; 1, 6, 8, not recognised. Why send more than six varieties. By your note you know this is the rule.—*H. Avery.* Apples: 1, New Hawthornden; 2, Hall Door. Peaches: 3, Dymond; 4, Noblesse; 5, Princess of Wales; 6, Stump the World.—*A. C.* Walburton Admirable.—*J. D.* We cannot undertake to name Grapes from such specimens, a bunch is required for the purpose.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. R., Thetford.* 1, Celastrus scandens; 2, Datura Stramonium. — *Rus in Urbe.* Vittadenia triloba syn. Erigeron mucronatus, *A. B. R.*—*Kent and Brydon.* Cladrastis tinctoria.—*A. B.* Cupressus Lawsoniana, omitted from reply in *Gardeners' Chronicle*, September 27.—*G. D., Waterford.* 1, Helianthus decapetalus; 2, Rudbeckia Newmani; 3, Chrysanthemum (Pyrethrum) uliginosum; 4, C. maximum; 5, Hedysarum coronarium (French Honeysuckle); 6, Lobelia cardinalis; 7, Hydrangea Hortensia var.—*A Reader.* 32, Helenium grandicephalum striatum; 3, Hypericum calycinum; 33, Agrostemma coronaria atro-sanguinea; 25, Chrysanthemum (Pyrethrum) uliginosum.—*T. W. C.* Clematis flammula.

PINK OR ROSE-FLOWERED ZONAL PELARGONIUM: *Ignoramus.* Princess Alix or Zenobia.

POTATO CROP GIVING RETURNS OF £8,000 STERLING PER ACRE: *G. S.* Such a statement is an utter absurdity.

SCOTS FIR: *Selsdon.* Procure plants of five years old from the nursery, and plant now, and during the winter in mild weather, and in spring; but autumn and spring are the better seasons.

SEEDLING DAHLIA: *A. W. T.* The flowers are of extra large size, and of almost dazzling brightness, but the form is not quite that required by the florists. It is of much value for making an effect in the garden.

VEGETABLE-MARROW STEM: *B. & Sons.* One of the largest instances of fasciation occurring in the bine of a Cucurbit that we have observed. There seem to be half-a-dozen branches grown together in a long, broad, flat mass, terminating in a number of abortive leaf-buds, flowers, &c. This sort of monstrous growth is sometimes caused by excess of vigour.

WHITE, RED, AND PINK ROSES, FOR AFFORDING CUT FLOWERS: *Ignoramus.* Devoniensis or Niphetos, Jules Finger, and Souvenir d'un Ami.

COMMUNICATIONS RECEIVED.—John Plummer.—F. W. B.—Dr. Henry—Madame Marc Antocolsky, St. Petersburg.—H. J. E.—C. B.—J. C.—Martin Smith—W. Earp—your letter has been sent to the addressee, W. Collins.—Constant Reader.—M. Buysman.—J. L., Denmark Hill.—Pteris.—Lord Kesteven.—H. O. E.—W. B.—W. G. S.—A. Pettigrew.—W. S.—J. W.—W. Collins.—S. R. W.—W. L.—F. E.—Miss M. A.—R. A. H.—R. S.—A. G.—E. H. J.—R. L. C.—J. Lockyer.—J. S. U.—F. W. T. S.—F. P.—Bromead.—C. Cox.—H. W. W.—Prof. Waugh.—J. J. W.—A. H.—P. Miller.—Dr. Bonavia.—H. E. T.

GARDENING APPOINTMENTS.

MR. J. WRIGHT, formerly Head Gardener at Hopton Hall, Werksworth, as Head Gardener at The Holts, Newent, Gloucestershire.

Mr. WALTER, late Steward and Gardener to the Rev. ARNOLD PAGE, Tendring, Weeley, Essex, as Gardener to Mrs. LAMY, Cavendish Hall, Suffolk, R.S.O.

Mr. JOHN HORSLEY, for the past nine years Gardener to the late E. J. TRENDELL, Esq., Abbey House, Abingdon, as Gardener to the Right Rev. Lord BISHOP of READING, at the same place.

Mr. A. HUBBARD, late Foreman at Blenheim Palace Gardens, as Head Gardener to the Hon. E. W. B. PORTMAN, Hestercombe, Taunton, and entered upon his duties on the 1st inst.

Mr. THOMAS SIMPSON, for the last three years Gardener at The Grange, Old Catton, Norwich, as Gardener to The Earl of GUILFORD, Little Glemham Hall, Wickham Market, Suffolk, and entered on his duties October 1.

Mr. WILLIAM KIRK, formerly Head Gardener at Blackmoor House, West Liss, Hampshire, for a period of sixteen years, as Head Gardener to O. HAGAN, Esq., Riverholme, Hampton Court.

Mr. W. J. JOY, lately Head Gardener at Rose Court, Havering-atte-Bower, Romford, Essex, as Head Gardener to H. H. RAPHAEL, Esq., Allestrie Hall, Derby.

Mr. A. T. PASKETT, for the past five years indoors Foreman at Leonardslee, Horsham, as Head Gardener to PHILIP SECRETAN, Esq., Slaugham Park, Crawley, Sussex.

Mr. W. GOODHILL, late Head Gardener at The Beeches, Walton-on-Thames, Surrey, as Head Gardener to C. NECK, Esq., Lily Hill, Bracknell, Berkshire.

Mr. E. WELFORD, for the last three years Foreman at Idsworth Gardens, as Head Gardener to Major LESLIE, Slindon House, Arundel, Sussex.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS. — *The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper, more than*

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS *at home, that it has a specially large* FOREIGN AND COLONIAL CIRCULATION, *and that it is preserved for reference in all the principal Libraries.*

THE
Gardeners' Chronicle
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A VISIT TO JERSEY.

ON the invitation of the Royal Agricultural and Horticultural Society of Jersey, it was my privilege to pay a visit to that delightful island during the month of September, and to deliver two lectures in connection with the Horticultural department of that Society in the Town Hall.

During my visit an excursion was organised by the Jersey Growers' Association, of which Mr. H. Becker is the president, to various growers' establishments in the eastern parishes. Opportunities were also afforded me of inspecting other horticultural establishments in different parts of the island.

While the variations in soil are extremely great on so limited an area, ranging from the poorest sand to the richest loam, I found the soil capabilities of the island very extensive. From statistics furnished me by Mr. F. W. Toms, the official analyst of St. Helier, I calculated that the organic matter of the soil ranges from 89,750 lb. to 118,750 lb. per acre when cut to 9 inches deep, and taking the average weight of soil at 2,000,000 lb. per acre at this depth. The nitrogen in the organic matter ranges from 3,050 lb. to 8,450 lb. per acre; the potash from 2,150 lb. to 4,750 lb. per acre; the phosphoric acid from 3,200 lb. to 6,250 lb. per acre; the lime from 4,675 lb. to 14,400 lb. per acre; while oxide of iron ranges from 15,250 lb. to 83,750 lb. per acre. So largely does this latter ingredient predominate that in some districts the drainage water is quite red.

The poorest soil is found in the parish of St. Peter's, while the richest is that of St. Helier. The soils of St. Saviours and St. Lawrence are about equal in fertility, although there are some striking geological differences in these two districts, especially in the ingredients oxide of iron and sulphuric acid; the large percentage of these two elements doubtless explains the reason for the scabbing of the Potato-tubers grown in the parish of St. Lawrence. The soil of St. Mary's parish is of a medium character. The hardness of the water is greatly due to the great prevalence of magnesia in the soil.

Nearly all the soils of the island are deficient in lime in the upper layers, some I found to be distinctly acid, which may possibly account for the large proportion of Sour Dock (Rumex acetosa) in those parts. The large proportion of phosphoric acid shows the land to be well adapted for fruit-growing, and the large amount of oxide of iron, combined with the phosphates, imparts the bright colours, both to the flowers and fruits. Available potash is decidedly deficient.

The Potato crop grown for exportation occupies first attention throughout the island. From statistics of Mr. P. Barbier, the Notary Public, I find that during the present year 66,625 tons of tubers have been exported; this is the largest quantity shipped since 1891, when 66,810 tons were sent from the island. So greatly have prices fallen during recent years, that while in 1891 the crop realised £487,642 1*s.* 8*d.*, the present year's produce, which is only a little less, realised but £387,364 5*s.*, a difference against the growers of £100,277 16*s.* 8*d.* From April 1 to May 3, 60 tons of Potatos were delivered which sold at £26 per ton. The week of largest exportation was from June 9 to 14, when 12,820 tons were shipped, the selling price being £5 4*s.* per ton; the lowest price realised was £4 11*s.* per ton. St. Malo has now become a keen competitor with Jersey for early Potatos, although the quality is said not to be so good.

Rents for suitable land are very high. No special rotation is followed. Potatos are grown in some cases every year, followed by Mangels, Carrots, Turnips, Barley, &c. Sometimes Potatos are grown for two or three years, then corn, or mixed Clover and Grass for a few years, then Potatos again. In recent years, Mustard has been grown for green manuring with good results. From 25 to 30 tons of farmyard-manure or seaweed are applied per acre, with frequently 8 to 12 cwt. of artificial manure, containing about 8 per cent. of ammonia, with 20 per cent. of soluble phosphate. Doubtless the success of the crop is enhanced by the increased temperature of the surface soil engendered by the decomposition of so large an amount of organic matter within it; whilst the carbonic acid evolved in the decomposition will, with the aid of moisture, serve to render the mineral resources of the soil more soluble.

Including rent, the total expenditure for the crop is often as much as £45 per acre; but almost always a second crop of some kind is taken the same year, after the removal of the Potatos. The earliest crops, which command very high prices, average about 6 tons per acre; but the average crop of the year ranges from eight to ten tons, according to season. Maize is being extensively cultivated for cattle feeding in its green state, and is said to give excellent results in the production of milk.

In the present season Apples are generally scarce, much of the fruit being very small, owing to injury during the month of July by caterpillars, which entirely defoliaged the trees. As there are so few wild birds in the island, if these insect-pests are to be kept under, a system of spraying must be adopted. It was noticed that the Apple-trees succeed best, being more healthy and more productive when treated on cultivated soils, which confirms the experiments at the Woburn fruit farm. The excuse of the growers against the practice is, that they cannot afford to waste so much ground. Consequently, the trees die out after about twenty-five years of cropping. The orchards in many instances have a neglected appearance, less care being taken of the Apple crop than formerly.

Asparagus is deservingly occupying the attention of growers, and some luxuriant areas were seen. The ridge system is often adopted, the rows being 2 feet apart. This permits of the manure, either farmyard-dung or seaweed, which has been applied as a top-dressing for winter protection, being pulled down into the furrows when active growth begins in the spring. It then feeds the spreading roots, and allows of the soil being pulled away so as to cut a good length of stem without injury to other crowns that have not come through. There is an increased cultivation of bulbs during recent years, and many thousands are forced; the Dutch people are large buyers for stock purposes. In fact, Jersey grown bulbs are being recognised as superior to those grown elsewhere. The demand for bulbs of Narcissus Telamonius plenus or double-flowered Daffodil, is most extensive. The Tenby Daffodil, N. obvallaris, is a great favourite.

The early varieties of Chrysanthemums grown outside do well, and command fair prices. French Beans grown as catch crops between early Tomatos, are said to be particularly suitable to the island, and there is always a good demand for this vegetable. A special culture for Green Peas was recommended by which a 3-feet high variety could be grown 7 feet high, and a crop could be depended upon whatever the season might be. The plan adopted is to dig the soil 2 feet deep, incorporating a large quantity of farmyard-dung mixed with bone-manure. Then, to grow a vegetable crop of some other kind to take out the more readily assimilable nitrogen of the manure, and to plant Peas in the second year; a magnificent crop of pods being invariably the result.

Tomatos are highly cultivated both indoors and outside, but the sight which met my eye this year was both surprising and saddening. For weeks disease has been ravaging the crop, and what promised to be successful cultures have now been utterly blasted. Spraying with Bordeaux Mixture has in many cases been tried, but only with partial success because the operation was not continued long enough. It is also very important

that the spraying should be started before there is any indication of disease. It is useless awaiting developments to confirm suspicion. Further, it was noticed that where leaf trimming had not been too severe the plants did best, as the leaves tended to protect the fruit.

There is decidedly a great necessity for a better system of grading and packing fruit for exportation than is now generally adopted. *J. J. Willis, Harpenden.*

(To be continued.)

past them; that the fruits mature quickly, and that each plant carries its 4 to 5 lb. of fruit in the shortest space of time possible. Quality, in very early Tomatos, is with many a secondary consideration, and for this reason the corrugated Large Red variety is largely grown in Guernsey; but the varieties just mentioned, having proved themselves as fulfilling these conditions quite as well, if not better, than the older one, will probably drive the latter into the background. They not only bear as heavily and ripen as quickly, but

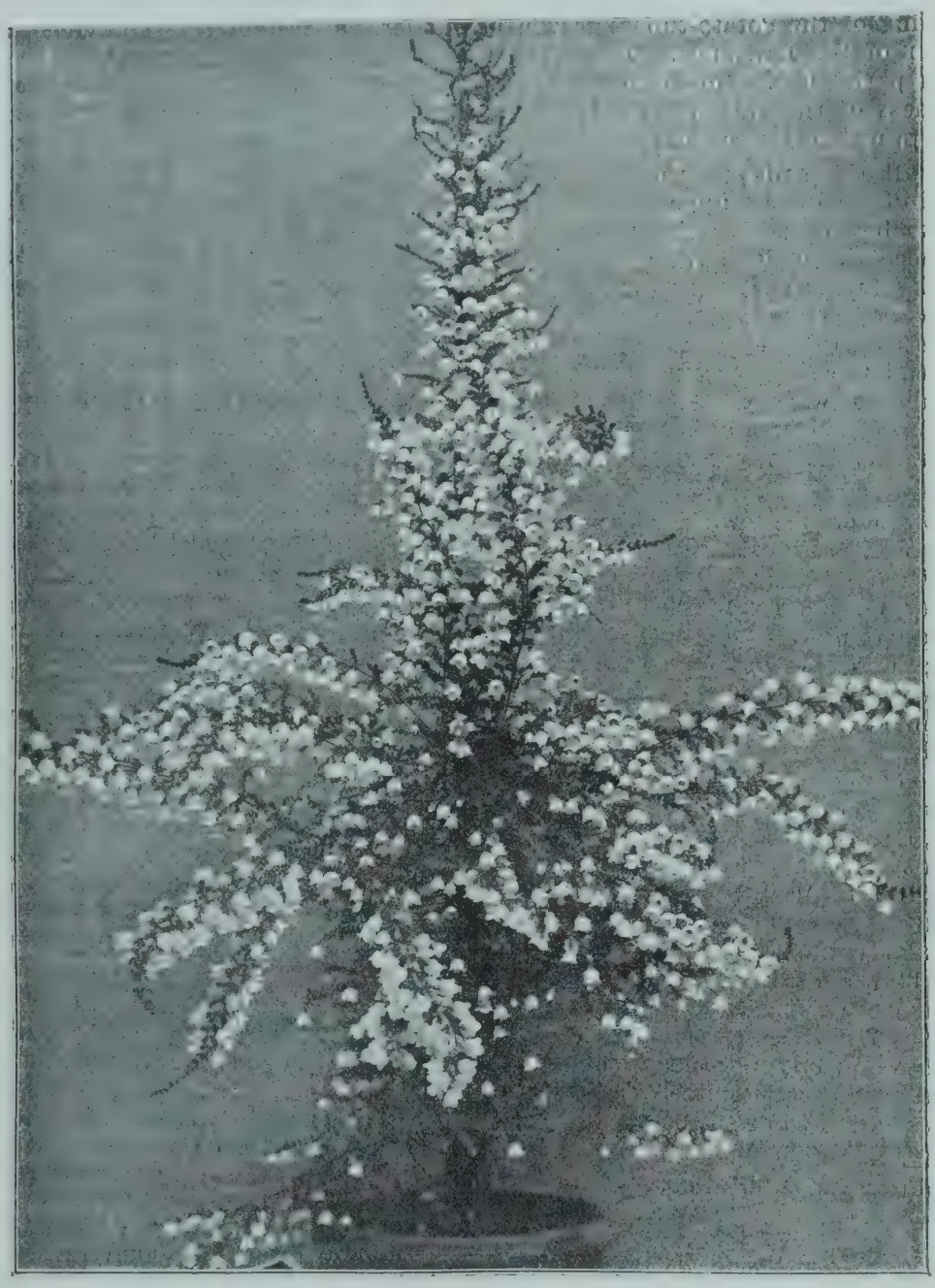


FIG. 91.—ERICA PROPENDENS.

MARKET GARDENING.

TWO GOOD EARLY TOMATOS.

WRITING from my experience in Guernsey, I have no hesitation in pronouncing Sutton's Winter Beauty and Lawrenson's No. III. as two of the most profitable Tomatos in cultivation for very early fruiting. I cannot speak so positively as to their value for English growers, but in Guernsey no others can approach them in merit.

The points we look for in early Tomatos are that they set freely in comparatively dull weather; that the bottom trusses may be readily secured without the plant running they are of the highest quality. Winter Beauty is probably the better of the two, but both are heavy, handsome, with smoothness of outline, and compare favourably as regards quality with the later maincrop varieties.

Early Tomatos of undoubtedly good quality such as these are of great value to Guernsey growers, whose trump card is earliness; the Tomatos exported by them holding the first place in the markets, at least, till the end of June. The seeds are sown towards the end of the present month, the young plants are potted off late in November, and are planted *in situ* the first week in the new year. The crop from them is marketed from mid-April till the end of May. *F. J. Fletcher.*

ERICA PROPENDENS.

WE publish at fig. 91 an illustration of this pretty species of Erica, supplied by Mr. Chas. Jones, Ote Hall Gardens, Sussex; and at fig. 92 a sketch by Mr. Worthington Smith of part of a plant of the same species exhibited at a meeting of the Royal Horticultural Society on March 28, 1901, when it was awarded a First-class Certificate. The species has been in cultivation for a number of years, though, as in the case of other beautiful Heaths, it is very seldom seen in gardens. E. propendens was figured in the *Botanical Magazine*, t. 2140, from specimens cultivated in the nurseries of Messrs. Loddiges & Sons, but the illustration does scant justice to the plant.

The habit of the plant and drooping character of the flowers may be seen perfectly from the two illustrations we are able to afford; and the colour is that of rosy-purple. As pointed out by "W. W." in *Gardeners' Chronicle*, April 15, 1899, p. 228, E. propendens may be said to closely resemble E. Chamissonis (*Bot. Mag.*, t. 6108), from a garden point of view; but though for the garden they are of about equal value, there are botanical differences in regard to the pedicels and to the colours of the anthers. Either species is well worth the care of cultivators who have not lost appreciation of a beautiful section of hardwood greenhouse plants.

BOOK NOTICE.

AMERICAN STRAWBERRY-BOOKS.

THE very interesting article by Mr. Payne in a recent number of the *Gardeners' Chronicle*, in which he tells about some Strawberry-books, is professedly only a beginning. He expressly hopes that some additions will be made to his preliminary bibliography. Inasmuch as he has given less attention to the American books on the Strawberry than to any other, my intrusion at this time may be more excusable. There is another reason why the American books on the Strawberry should not be neglected, and that is, that Strawberry-growing has developed to a very much larger extent in this country than in any other. There are various sections of this country from which regular Strawberry-trains are run daily during the picking season, carrying thousands of crates to the large distributing centres. Even our smaller towns through several months of the spring and early summer receive Strawberries daily in car-load lots for distribution. This very great commercial development might be expected, therefore, to have its influence on the literature of the subject.

Another matter which might have its bearing on the subject is the fact that the Strawberry is doubtless native to this continent. It is at home here in a double sense. American horticulturists might be supposed to have the most accurate and intimate knowledge of it; although I confess that experience and the literature of the subject do not strongly support this theory.

The cultivation of the Strawberry has usually been treated along with that of other so-called small fruits. Books on small fruits and small fruit culture have been very popular in this country. In all of these have been chapters on Strawberries and Strawberry growing, and they have always received wider circulation than the books given exclusively to the Strawberry crop. The one book which has been the most popular of all is *Fuller's Small Fruit Culturist*, written by Andrew S. Fuller, and published in New York about twenty-five years ago or longer—I have not the exact date at

hand. But this same author, whose works have all been very popular in this country, wrote a smaller work exclusively on Strawberry growing, which has also had a large sale. This was "*The Illustrated Strawberry Culturist*: containing the history, sexuality, field and garden culture of the Strawberry, forcing or pot culture, how to grow from seed, hybridising, and all other information necessary to enable everybody to raise their own Strawberries, together with the description of new varieties, and a list of the best old sorts." The first edition of this book was published in New York in 1862, and the new, revised edition appeared in 1887 from the same publishers.

Perhaps the first Strawberry-book in this country was that written by Mr. A. G. Pardee, and published in New York in 1854. This was entitled *A Complete Manual of the Cultivation of the Strawberry*, and went through several editions. Next in chronological order came Mr. Fuller's *Strawberry Culturist*, mentioned above; and after that, one by J. M. Merrick, jun., entitled *The Strawberry and its Culture*, published in Boston in 1870. One year later Mr. Charles Barnard published his book *The Strawberry Garden*, also at Boston. Mr. Terry's book on *How to grow Strawberries* is mentioned by Mr. Payne in his article in the *Gard. Chron.*, Aug. 16, p. 109. Mr. L. J. Farmer, of Pulaski, New York, has written a great deal about Strawberry-growing, and his principal ideas were condensed into a work entitled *Farmer on the Strawberry*, which he published in 1891.

In the way of shorter articles, our literature is much more extensive and altogether more satisfactory. Mr. Payne, in the article referred to, made mention of a bulletin from the Cornell Experiment Station on "The Greenhouse Culture of Strawberries." There have been some hundreds of bulletins published in this country, most of them dealing with the various phases of the much more important field culture of this fruit. It would be impossible for me to give anything like a list of these here, without occupying more space than the information would be worth. Perhaps the very best recent account of this subject is to be found in Professor Bailey's *Cyclopædia of American Horticulture*.

Anyone who might be interested in collecting the literature of the Strawberry would find a large quantity of material in America, most of which is interesting and useful, but some of which naturally is of small account. *F. A. Waugh, Massachusetts Agricultural College.*

COLONIAL NOTES.

JAMAICA TRADE IN FRUITS, HORSES, AND CATTLE.

MESSRS. ELDER, DEMPSTER & CO., following the policy adopted by the firm of offering every inducement to increase trade to those ports with which they operate, now declare their intention of carrying horses and cattle for stock purposes free to Jamaica. Sir Alfred Jones, in making known this fact to our representative, said that the possibilities for Jamaica were enormous, and so far as he was concerned he believed in the future of the island. The opportunities offering for the establishment of several industries and the development of others could not be overestimated. Fruit is to be had at practically no cost, and sugar is grown in abundance on the spot for preserving it; and there was no reason why the jam industry should not attain great proportions and be a success. The future of the island in mineral production, horse and cattle rearing, and in other directions, could be assured by the introduction of capital, ability, energy, and enterprise. *From the Liverpool Journal of Commerce, Oct.* 7, 1902.

FIG. 92. FLOWERING BRANCH OF ERICA PROPENDENS. (SEE P. 278.)
(Colour of flowers rosy-purple.)

FORESTRY.

FACTS AND FANCIES IN BRITISH FORESTRY.

CHOICE OF SPECIES IN PLANTING.—Few more difficult problems confront the British forester than that of selecting the proper species for a particular soil or situation. It is not a difficult matter, perhaps, to name one or two trees which will, in all probability, become in a few years what is termed a thriving plantation; but whether they will ever grow into a profitable crop of timber, and be a credit to the planter, is another matter. The planter of forest trees has always a great temptation before him, viz., that of gaining a cheap and temporary reputation by planting only trees of rapid growth, which will make a big show in a few years, but possibly fail to turn out an ultimate success. There are some soils, it is true, which seem to suit all kinds of timber, and on such it is difficult to go far wrong. Others, again, are only adapted for a very limited number, and speculative planting may turn out a miserable failure. In British forestry, as it is at present, the selection of a species may not be determined by economic considerations at all. The motives which induce the proprietor to plant may invest the case in point with many aspects which no outsider can anticipate. The proprietor may want landscape effect; he may want a corner or clump tacked on to or dropped into an existing plantation; or he may evince a preference for a particular species, and insist upon having it. All this is unknown to the ordinary critic or observer, and his approval or condemnation may be valueless accordingly. The expert who has nothing more important to do than sit in his office and prescribe mixtures for soils and situations a hundred miles away, and which he has probably never seen, has a comparatively light task. In imagination, his mixture goes through the various stages of planting, thinning, and felling, in about half-an-hour, and he is then at liberty to plan and create (also in imagination) extensive forests in another direction.

But to the man on the spot, all this is not quite so easy. Local climate, peculiar conditions of soil or situation, and the various objects in view in forming the plantation, have all to be taken into account; and it may be extremely difficult to decide what are or are not the best and most suitable species to plant. Our predecessors of 150 or 200 years ago had a far easier task than we of to-day. Then half-a-dozen species were the most they had to choose from, now we have as many scores. Collectors in all parts of the world have been pouring in their contributions, which, after standing two or three winters' frost, are duly described as "trees which will produce valuable timber." In the old days, Oak, Ash, Beech, and Scots Fir were the only species extensively planted, and it was not until the introduction of the Larch that any great change in the menu became general. For a considerable time the Larch satisfied all demands made upon it, and nothing better was desired. Then, when disease appeared, substitutes were looked for, and, if everyone could be believed, they were found in all directions. From the glowing descriptions given of the growth of this, that, and the other species, one was almost led to believe that no one with a particle of common sense would plant anything else than what for the time being was supposed to be the "coming tree." After a brief run, however, most of them have now been relegated to their proper place, and planters are gradually resigning themselves to the inevitable, and in many cases beginning again, where the older planters left off. It is gradually being realised that, for estate purposes, the Larch stands alone as a tree which can be profitably turned to account at any age, and that being the case, it is better to plant land which does not happen to suit it with some crop of a more permanent if less profitable character, than to plant what looks like, but never can be, a substitute. Our forefathers pinned their faith largely on indigenous hardwoods and Scots Fir, species which no one looked at when the Larch boom was at its height. Now, we are gradually returning to their way of thinking, which simply amounts to the principle that half a loaf is better than no bread. The market for most of our hardwoods is fairly steady, while that for a great deal of coniferous timber is very uncertain in many districts. The reason for this may possibly be found in the fact that many districts of England contain little mature coniferous timber, and what there is, is usually of a rough and unsaleable character.

For centuries hardwoods have been recognised as furnishing the marketable timber of the country, and English timber-merchants depend upon them for carrying on their industry. In Scotland and many parts of the north of England other conditions prevail, which proves the truth of the dictum that a supply creates a demand. If a district which now contains little but hardwood timber could, by some stroke of magic, be instantaneously furnished with the same quantity of Scots Fir or other Conifer, there is little doubt but that a market would arise for it in a very short time. We do not assert that the two classes of timber would sell at the same price, or with an equal amount of profit to the seller. But the fact cannot be impressed too strongly upon planters that the readiness with which timber sells in this or any other commercial country depends as much upon the quantity as the quality. We are told by eminent experts that we are on the verge of a timber famine. Evelyn predicted the same thing 200 years ago as regards Oak-timber for the navy. Whether a similar reason for the nonfulfilment of the one may be found to arise in connection with the other prophecy, none can say with certainty. But few can deny that the decrease in the natural stock of timber in the world must go hand-in-hand with the increase in its population sooner or later; the forests of all countries must be artificially protected, if not reared, and this must prove an important factor in the price of timber. The fact that Pine timber at the present time can be had practically for the cutting down in Canada or Sweden, is no reason in itself why the planting of Scots Fir on poor sandy ground to-day should be an indication of insanity on the part of the planter. No one of sound common sense would plant Scots Fir where he felt practically certain that Oak, Ash, or Larch would do as well, or even slightly worse; but economic considerations, and the requirements of the grazier and farmer will not always allow the forester to plant exactly where he would like. It is not given a certain species to find a soil, but given a soil, to find a species which will suit it. No man living can predict with certainty what class of timber will be most in demand fifty years hence, and planting for profit is more or less a speculation. The correct policy to adopt in large planting operations is that of choosing a few likely species and planting them in as large masses as possible. A block of 40 or 50 acres of sound, clean, and mature timber of any one kind will sell at a higher price, other things being equal, than the same quantity spread over a wide area. In the one case, the purchaser sees what is before him, and can make special arrangements for turning it to advantage; in the other, it may not be worth his while to buy in small lots, or go to the extra expense of collecting them to a common centre. To eulogise one species or condemn another is sheer folly, in view of the limited length to which we are able to see ahead of us. *A. C. Forbes.*

THE HOLLYHOCK.

THE Hollyhock, as perhaps most garden-lovers are aware, is a very old denizen of English gardens, and is mentioned by Parkinson in the chapter on those "called usually English Flowers." Moreover, like a few other old flowers, it has appropriated a name that originally belonged to another plant, the Marsh-Mallow; a name too, as Turner avers that was bestowed upon the "jagged" Mallow (Malva crispa). So late as three hundred years ago, Markham recommended "Holy-hoxe or Sea-Mallows," another name for Marsh-Mallow in veterinary medicine, so that it is safe to conclude that during at least the sixteenth century, three distinct plants were recognised as the Hollyhock. How long a time previously our Hollyhock was cultivated it is impossible to say, but Dodoens mentions its English name in one of his books, from which it may be assumed it was no uncommon plant in the early half of that period. A hundred years earlier it, or Malva crispa, is referred to in Russel's *Book of Nurture* among the herbs recommended for a medicinal bath:—"Holyhokke and Yardehok pelitory, and the brown fenelle, &c."

"Yordehok" is synonymous with Garden Mallow, the latter an early name for the Hollyhock employed by Hill, Lyte, Gerarde, Rea, and others, though Evelyn (*Acetaria*) considered Malva crispa the true Garden Mallow. However, Evelyn's assumption is not endorsed by earlier writers, its place being generally among wild Mallows. In another of Markham's books, it is interesting to find "Mallows and Hollyhocks" named as useful in baths; but one cannot certainly conclude what these were, as the "Mallow" might or might not be our Hollyhock, and the "Hollyhock" the Marsh-Mallow. Hill, in the *Proffitable Arte of Gardening*, distinguished the plant merely as the "Greater or Garden Mallow, white and red, which the women in our time use to decke their houses and windows with;" and Tusser indicates it as the Holy Oake for the same purpose. As a matter of fact, the Hollyhock, like other plants that are multicentenarians, may be discovered under a variety of names.

The single varieties with their perfectly formed blooms suggestive of Roses, were variously designated Winter Roses, Holly Roses, Rose Mallows, and Rose Tremiers. Johnston states that a double scarlet variety like a Provence Rose was known in 1633 as the Rose Mallow, but originally the doubles were not so-called. Rose Tremier with orthographical variations has sometimes proved a puzzling quantity. It was current about 200 years ago, and less, by which time the degrading influences of years had reduced "Rose d'outre mer," to that truncated and almost unrecognisable condition. "Rose ultra marina" was the Latin original translated by Lyte, Beyond Sea Roses. The Hollyhock was also called Tree Mallow previously to Lavatera arborea acquiring that name. Hollyhock, the sole name in use in modern times, is also not without its variants, the

least appropriate of which is Holly Oak and the more correct Holy Hock. Holly is a very obvious mistake, the plant having as little connection with the shrub of that name as it has with the Oak. Why it acquired the distinction of "holy" is very simple, though the reason has not always been clear; the vague idea that the plant had at some time been introduced from Palestine, having been produced as a satisfactory solution, though without possessing a shred of evidence in its support. A certain number of plants, on account of the virtues they possessed, were thought to be of so great value to mankind as to deserve and receive the name of "holy." Such was the Mallow of the ancients, and it is therefore not surprising to find the Marsh-Mallow bearing the monkish name of "Malva benedicta," the blessed Mallow, or holy hock, these expressions being synonymous. The last half of the appellative is more difficult to explain. "Hock" was common to both England and Scotland, and was applied to many subjects besides the plant. It appears in this case to have been employed to distinguish the root as distinct from the other parts of the plants, as, for example, "Mallow hockis" would lead us to infer. Though the derivation of the word is unknown, it appears not unworthy of consideration whether the natural habitat of the Marsh-Mallow, in salt-water marshes, and thence called the Sea-Mallow and Sea-Mint, may not yield a key to the meaning. "Hock and hocks," according to *A World of Words*, is an English phrase signifying "mire and dirt;" and the Scots equivalent means digging in search of anything, e.g., "howking" worms, "howking" Potatos, &c., though its old meaning was much broader. "Hock," therefore, may indicate the miry substance in which the roots were found, and perhaps also the method of procuring them, transference to the plant being a simple matter.

It is, too, not unworthy of notice that the virtues of the officinal Mallow seem to have been transferred along with the name to the Hollyhock, as the latter was in use for all purposes for which the former was esteemed. Thus we are assured "the garden Mallow is wholesomer to be eaten than the wilde." It was "sodden and eaten;" the leaves cooked were "taken in meate," and "rawe—eaten with a little salt." In medicine also it occupied for a while an important place.

We have already seen that the Hollyhock was early in use as a decorative cut flower, for which those who have employed the single varieties are aware it is singularly well adapted. About the same date Lyte remarks on its great variety, single and double, and notes the fact of its cultivation in English gardens. It is one of the few flowers that Lawson admitted almost solely for "ornament" into the country housewife's garden. Parkinson recommends it "to sute you with flowers when almost you have no other to grace your garden;" and Rea provides an invaluable account of the plant as grown in 1656. It is remarkable that the same types of double flowers were in existence then as now, "some very thick and double, like the Provence Rose, some that have the outer petals broad, some that the double flower hath many heads, as if many small double flowers were thrust together into one." The colours represented were "white, silver, cream, blush, rose, carnation, scarlet, orange, brimstone, bright red, dark blackish-red or purple."

Rea's son-in-law, the Rev. S. Gilbert, somewhat superciliously dismisses Hollyhocks as "trifles adored among country women in their gardens, but of no esteem to a florist, who is taken up with things of more value,"—a really first-class recommendation. Laurence informs us how they were disposed in 1726: "Proper places against Walls or Corners of Gardens should be assigned them where they may explain their Beauty to distant views." The same writer intimates the increase of distinct sorts by means of offsets. The methods of culture are detailed so fully in Hill's *Eden*, that references to works other than that, would be superfluous. The common practice, which was condemned by our authority, was to sow thickly in drills, whence the plants were "transplanted at small distances, and there left to flower the first time." The better forms were then selected and planted in borders, and the worthless thrown away, but they were all so weak that Hill considered the rubbish-heap the proper place for those selected too. As a better method, it is recommended that the seeds be sown broadcast, and the seedlings to be thinned if they appeared too close together. These were shortly to be transplanted into prepared ground, deeply trenched, and each plant allowed 18 inches every way. In October, "they are to be transplanted into the places where they are to flower," and great care was needed at this stage that balls of soil should be preserved along with the roots. The succeeding year the plants flowered.

Variegated flowers, according to Miller, were introduced from China in his day, but these were no novelty as early as the days of Elizabeth.

The Hollyhock as a modern flower dates from about 1840, when a Mr. Baron of Saffron Walden commenced raising and multiplying improved varieties. Shortly thereafter the blooms were being exhibited in the same manner as the Dahlia, but according to Glenny the petals were flimsy, and the blooms like Anemones with broad guard-petals. It was discussed as a question of importance whether blooms should continue to be shown singly, or on spikes of three to five flowers! Time happily settled the matter, and single blooms and spikes of no limit as to number of flowers were permitted in competitions. Chater succeeded Baron as the great exponent of Hollyhock-culture, and Paul and the late John Laing, then gardener at Dysart, Fife, became noted as growers and raisers of new varieties. The latter planted his stock in front of south walls, and in not a few gardens in Scotland it was the practice to purchase annually sets of new Hollyhocks at a uniform price of 10*s.* 6*d.* each plant. Propagation was effected in summer by cuttings taken from the base of old plants, and by stems cut into single eyes, and in spring by means of cuttings from started stools, or by grafting on roots.

The terribly destructive Hollyhock disease appeared about eight-and-twenty years ago, and during many years it was a rare experience to meet with this noble plant in gardens. Happily, by the old practice of raising seedlings, we are now able to combat the enemy, but it is noteworthy that seeds must be secured from plants free of disease, else the young seedlings are liable to attack at an early stage and rendered worthless. One packet of seeds sown by the writer one year ago produced seedlings that were affected almost as soon as they were above the soil.

Poets have nearly all fought shy of our flower, but we have at least the alliterative line of Tennyson,

> "Heavily hangs the Hollyhock;"

and Walter Crane's essay—

> "The Hollyhock his standard high
> Rears proudly to the autumn sky."

Not improbably, therefore, the advent of the poet of the Hollyhock is somewhere in the future. *R. P. Brotherston.*

COMMON PESTS OF THE APPLE, PEAR, QUINCE, NUT, PLUM, &c.

A CORRESPONDENT, writing over the initials "S. R. W.," asks us to inform him in which way he may preserve his crops of fruit from the ravages of caterpillars, but omits to name the species. We assume that he means such common scourges as the Winter-moth, Cheimatobia brumata, and the Codlin-moth, Carpocapsa pomonella. The female Winter-moth is dusky-grey, not quite wingless, but the abortive wings with which it is furnished are too small to be of any service in flying. The male moth is from 1 in. to 1½ in. across; the fore-wings, which are silky in texture, are greyish-brown; the hind-wings are greyish-white.

In order to prevent the wingless females from getting to the shoots near the end of which she lays her eggs in October and part of November, grease-bands underlaid with a broad strip of grease-proof paper must be put round the stems of orchard-trees, &c., and the stakes and wires of espaliers, early in October; these grease-bands, procurable from the nurserymen and sundriesmen, being freshly coated with the right sort of grease whenever it has become hard and lost its stickiness. The bands must be placed close to the stem, shaving off rough bark, or putting a fillet of clay round the upper edge of the bands. Should the moths have got to the branches and crevices of the bark owing to lack of precautions, the Paris Green (also Emerald Green, and Schweinfurth's Green) dressing should be used to spray the shoots.

In the second week in March the eggs change from greenish-white to orange, and then just before hatching to a reddish colour. The caterpillars appear at the end of that month, and are of various colours, greyish, greenish-grey, and some almost black. Like other caterpillars known as "loopers," they have four pairs of sucker feet below the body, and one pair at the end of the tail. They soon begin to attack the foliage and young growths, and in bad cases devour buds, flowers, leaves, and fruit. There are various recipes for making Paris Green mixture. One oz. of the poison to 10 gallons of water may be applied to young foliage without causing harm, and 1 oz. to 6 gallons on mature foliage. If Wheat-flower to the amount of 1 lb. per 10 gallons of water be well stirred and comminuted, it will render the mixture adherent, as well as separate the particles of Paris Green more thoroughly than stirring or agitating the mixture with a syringe or stick. Use a sprayer, and merely coat the leaves with a fine dew, and leaving off when the dressings begin to drip. Let the mixture be kept stirred from first to last, otherwise the Paris Green, being heavy, will fall to the bottom of the vessel, and may do harm to the foliage. Do not spray trees in bloom, and do not handle or inhale the powder. Obtain it in 1 lb. packages, in a finely-powdered state, or as a paste.

In regard to the Codlin-moth, place hay-bands, or flannel or sacking cut into strips, the strips being folded twice so as to make a fold 1½ inch wide, the folded edge being turned downwards, and fasten these round the stems of the trees with a piece of cord or wire. Examine the bands once a week as long as there is any fruit left on the trees. Trees having loose, rough bark should be scraped carefully, and the scrapings placed in sacks and burned. This should be done in November.

The Paris Green mixture may be sprayed over the trees from the time the fruit is set till June or later. Fallen fruits should be collected and burned forthwith daily, or given

to the pigs; burning is, however, the best course, for the maggot almost immediately leaves the fruit when it has fallen, creeps away, and becomes a chrysalis, in which state it remains till the spring, when the cycle of generation begins anew.

ALPINE GARDEN.

POTENTILLA ALCHEMILLOIDES.

This herbaceous Cinquefoil is becoming rather a favourable plant, if we may judge from the frequency with which it is now appearing in good collections, although for long it was scarcely ever met with. It is well named alchemilloides, from the resemblance of its leaves to those of Alchemilla alpina and I have seen it mistaken by some for that plant when not in flower. The resemblance in form is not however absolutely complete, and the plant under notice has not the exquisite white satiny down which characterises the alpine Lady's Mantle. The flowers are white, and are very freely produced from May for a long time at a stretch. There may be a gap in the succession of bloom in late summer or early autumn, but the plants soon send out a fresh crop of flowers, which are continued until after frost has appeared. It comes from the Pyrenees. The height of the plant varies much, according to the soil and position, but about 9 inches is an average one. As a neat and continuous bloomer, although not a showy plant, combined with the ease with which it may be grown in any common soil, in either sun or shade, it has many claims upon our attention.

VERONICA CORYMBOSA.

One has sometimes to be content with a name which has not much consistency, for the simple reason that it is difficult to substitute one any better for garden purposes. The correct name of this plant is probably V. spicata var. corymbosa; but even this is a little indecisive, since there are other forms of V. spicata which have flowers in a corymbose head, as well as the one of which I now speak. The plant to which I refer is a low-growing alpine form, which makes a close, dense growth, and produces late in the year, on stems about 6 inches high, very finely coloured purple-blue flowers arranged in a corymb. Its great value, apart from its own intrinsic beauty, lies in the late time at which it flowers, generally from August onwards—a time when there are few alpines of its character in bloom.

CROCUS ASTURICUS ATROPURPUREUS.

A collection of the autumn-blooming Croci and their varieties is one of the greatest of one's pleasures at that season, when the garden of alpine flowers is apt to be dull and wanting in colour. From the appearance of C. speciosus and C. zonatus, until the end of the year, one may always have one or more of these charming plants in flower.

This autumn I have been particularly pleased with a little clump of the variety of C. asturicus, which is named atropurpureus by Messrs. Barr & Sons. This is the second or third year in which it has bloomed, and the increase of the corms enables one better to realise its worth than when there are only two or three flowers together. In the sunny and sheltered position it occupies, it suffers less from the autumn storms than some of my Croci, and the little clump is most delightful with its small deep purple blooms open in the sunshine, and well supported on little stout tubes which hold it up. It is the deepest coloured of these autumn Crocuses I have here, and is one which those who care for the genus —and who does not?—might well grow in their gardens.

LINDROTH'S CLASSIFICATION OF THE UREDINEÆ ON THE UMBELLIFEREÆ.*

The recently published work of Mr. J. I. Lindroth, published at Helsingfors, *Die Umbelliferen-Uredineen*,† consists of a classification and description of all the known species, some eighty-eight in number, of uredines which attack umbelliferous plants. It may not be uninteresting to see what would be the arrangement of our British species under this system.

The author divides the Pucciniæ on the Umbelliferæ — which are by far the most numerous—into four groups: (1) Those with reticulate teleutospores; (2) with verrucose; (3) with smooth; (4) with well developed teleutospores thickened above, on coloured persistent stems; and (5) a group which includes four exotic Lepto-pucciniæ.

PUCCINIÆ.

I. RETICULATÆ.—Teleutospores with reticulated epispores.

1. Puccinia Smyrnii-olusatri, D.C.
   Spermogonia, Æcidia and teleutospores.
   On Smyrnium olusatrum, L.
2. P. Chærophylli, Purt.
   Spermogonia, Æcidia, uredo and teleutospores.
   On Anthriscus sylvestris, L.
   Myrrhis odorata, Scop.
3. P. Pimpinellæ, Strauss.
   Spermogonia, Æcidia, uredo and teleutospores.
   On Pimpinella Saxifraga, L.
4. P. Heraclei, Grev.
   Spermogonia, Æcidia, uredo and teleutospores.
   On Heracleum spondylium, L.
5. Puccinia bulbocastani, Cum.
   Spermogonia, Æcidia and teleutospores.
   On Carum bulbocastanum, Koch.
6. P. Cicutæ, Lasch.
   Spermogonia, Æcidia, uredo and teleutospores.
   On Cicuta virosa, L.

II. PSORODERMÆ.
Epispore of the teleutospores verrucose.

7. P. Hydrocotyles, Link.
   Spermogonia, Æcidia, uredo and teleutospores.
   On Hydrocotyle vulgaris, L.

III. BULLATÆ.—Teleutospores smooth, uredospores distinctly thickened above.

8. P. Petroselini, D.C.
   Spermogonia, uredo and teleutospores.
   On Æthusa cynapium, L.
   Petroselinum sativum, Hoffm.
9. P. Conii, Strauss.
   Uredo and teleutospores.
   On Conium maculatum, L.
10. P. Angelicæ, Schum.
    Spermogonia, primary uredo, secondary uredo, primary teleutospores and secondary teleutospores.
    On Angelica silvestris, L.
11. P. Apii, Desm.
    Spermogonia, Æcidia, uredo and teleutospores.
    On Apium graveolens, L.
12. P. bullata, Pers.
    Spermogonia, primary uredo, secondary uredo, primary teleutospores, and secondary teleutospores.
    On Silaus pratensis, Bers.
13. P. Ægopodii, Schum.
    Uredo teleutospores.
    On Ægopodium Podagraria, L.
14. P. tumida, Grev.
    Teleutospores.
    On Conopodium denudatum, D.C.
15. P. Sanículæ, Grev.
    Spermogonia, Æcidia, uredo and teleutospores.
    On Sanicula europæa, L.
16. P. Bupleuri-falcati, D.C.
    Spermogonia, Æcidia, uredo and teleutospores.
    On Bupleurum tenuissimum, L.

IV.—Teleutospores, long covered by the epidermis; on persistent coloured pedicels. No British species.

V.—No British species.

UROMYCES.

No British species.

HETERŒCIOUS ÆCIDIA.

17. Puccinia Conopodii, Kleb.
    Æcidia on Conopodium denudatum, D.C.
    Teleutospores on Polygonum bistorta, L.

Charles B. Plowright, M.D., King's Lynn.

* Read before the British Mycological Society at Hereford, September 25, 1902.

† *Die Umbelliferen-Uredineen.* J. Ivar Lindroth. Helsingfors, 1902. 8vo, pp. 224.

PALMS.

As Palms have played a leading part as decorative subjects for many years, a cultural note in a horticultural journal may not be superfluous, judging by the appearance of the Palms in some gardens. If treated properly, the Palms generally grown for decorative work — Howeas (Kentias), Geonomas, Cocos Weddelliana, &c. — may be kept of useful dimensions for a great many years; but the British gardener does not seem to recognise this to the same extent as does the continental gardener. By a proper kind of manuring, Palms may be confined to pots not exceeding 6 inches in diameter for some years. The common error amongst cultivators here is overpotting—I do not mean that the plants are spoiled by potting them on as they require it, but that they are rendered useless for many decorative purposes owing to the large size of the pots. That large and useful Palms may be grown in small pots is well demonstrated by a visit to the Palm-house at Kew, where, on the stages may be found hundreds of plants that have been confined in small pots for some years, and yet are showing their proper characteristics. The secret consists in the careful application of water. Palms under ordinary circumstances grow so easily that the man with the water-can is too apt to treat them carelessly. Being free-rooting subjects, there is little but roots left in the pot after the plant has occupied it for a season or two, and to maintain a plant in good health under such conditions necessitates extreme care, as a few hours' drought may effect such a check as to cause many of the leaves to turn of a yellow tint; and on the other hand, if too wet, the roots are quickly ruined. There are many so-called fertilisers recommended for Palms, but after having seen many of them afforded a fair trial, I have come to the conclusion that there is none that surpasses the old concoction of sheep's-dung and soot-water, providing that it is used quite clear. A very suitable compost for Palms that have to remain for a long period without being repotted is a mixture of three-parts good turfy-loam and one of leaf-soil, with a fair addition of sand and coarse bone-meal. When repotting Palms, always bear in mind that all monocotyledonous plants are much more liable to injury at the root than dicotyledons, therefore the less

handling of the roots the better. With Kentias it is often necessary to disturb the ball considerably when potting, as they have an unfortunate habit of forming stilt roots. Under ordinary circumstances it would take a very large shift to take in these roots; but the difficulty is avoided by removing much of the soil from the top of the ball, and pulling the stilt roots out to the sides, and then potting firmly. When dealing with large specimens, it is advisable to place turf round the base of the stem instead of trying to lower the plant, as by doing this new roots are encouraged, and the plant obtains a firm support. If a bed having a strong heat is available, the roots of a plant if small in size may be reduced, and the plant put back into the same sized pot. When this is done, March will be found the better month. For general potting April is the proper time, as growth is then becoming active. It should be remembered that Palms never rest as do other plants, but they grow very slowly during the winter. *F. J. Cole.*

ROSE RENÉ ANDRÉ.

THE beautiful weeping Rose shown in fig. 93 was exhibited at some of the summer shows by Mr. Chas. Turner, Royal Nurseries, Slough, who has kindly informed us that the variety is one obtained from crossing Rosa Wichuriana with the pretty and well-known Noisette L'Idéale. It is therefore an addition to a group of varieties that is meeting with much popularity, owing to their qualities obtained from R. Wichuriana. The present variety has double, creamy-white flowers, tinted with pink, and our illustration shows how beautiful an object it may become if trained similarly to the plant exhibited by Mr. Turner.

NURSERY NOTES.

MESSRS. LAXTON BROS., BEDFORD.

ON June 25 last, being in the town of Bedford, I took the opportunity to make a call on Messrs. Laxton Bros., in order to inspect their seedling Strawberries, to taste the fruits, and compare the merits of the more promising-looking of the new varieties. They have some really marvellous results in several directions, one seedling especially having the largest fruits that I have ever seen; the flavour of this variety is also very good, and the flesh firm. I noted the enormous cropping capabilities of Fillbasket, although it was not ripe. Trafalgar is a very promising late variety; it appeared to be a heavy cropper and a good grower. But that which most took my fancy was "The Laxton," which, although the variety was badly cut up by the frost of May 13 and 14, carried a good quantity of large fruits of fine colour and good flavour; it is a fruit that is almost, if not quite, as firm as that of Sir Joseph Paxton, and quite ten days earlier. It is a vigorous growing plant, which appeared to me to have every quality a Strawberry should have. If it prove as accommodating in the matter of soils and climate as Royal Sovereign, I have not the least doubt that it will supersede that excellent variety. I observed a promising batch of seedlings from the perpetual-flowering variety St. Joseph, crossed with The Laxton, and other fine varieties, several of them showing the perpetual character of St. Joseph, combined with the size and flavour of the other. *W. E. W.*

"NATURE-STUDY" IN THE UNITED STATES.

IN Volume X. of the *Special Reports* issued by our Board of Education, Mr. R. Hedger-Wallace gives a carefully considered and most useful account of what has been called "Nature-study" in the United States of America. It is generally supposed that we have borrowed some of our ideas from that country; but if this be so, we have taken of the best, and it behoves us to avoid developments which are not to the advantage of education. Mr. Hedger-Wallace's paper shows us many of these, while perhaps its greatest value lies in bringing vividly before us the chaos which is due to the fact that in "Nature-study" we have a term or expression which does not at present indicate clearly some generally recognised and accepted educational principle.

We are already in danger in this country of getting into difficulties and defeating our own

FIG. 93.—ROSE RENÉ ANDRÉ (R. WICHURIANA × L'IDÉALE).

objects, or letting others do it for us, by not coming to some general conclusions as to what is and what is not "Nature-study," so far at least as elementary education is concerned. Let us profit by the example of America, where the term "Nature-study" is so loosely applied, that the question whether it is anything more than a fad has been frequently debated. Mr. Hedger-Wallace enumerates seven distinct kinds of teaching that are called "Nature-study," irrespective of combinations of one or more of them; while in an appendix to his paper he gives a list of at least a dozen, distinguished by Professor Hodge, himself a prominent American "Nature-study" worker.

We may very briefly consider the methods or systems with which the main portion of the paper is occupied. These are:

(1) *Ordinary object-lesson teaching, in which special attention is devoted to natural phenomena and natural history objects.*—This, Mr. Hedger-Wallace says, is called elsewhere "earth knowledge" or "Nature knowledge," and the object of such teaching is to impart information about natural phenomena. With this last statement we do not altogether agree, for much mental training and encouragement of the real use of one's eyes can be obtained from properly conducted object lessons, though perhaps it is hardly fair to call this ordinary object-lesson teaching. Mr. Hedger-Wallace, going back to the United States, continues that "a teacher wishes to teach certain data bearing on some specific natural object or objects, and in America does so by calling it 'Nature study' instead of object-lesson teaching." A course of this type is said to be a form of—

(2) *Elementary science teaching.*—Mr. Charles B. Scott, recently instructor to the State Normal School at Oswego, New York, takes the terms "Nature study" and "elementary science," as being synonymous.

(3) *The teaching of the elementary principles of agriculture.*—In Canada there exists a sentiment in favour of agricultural work taught apart from teaching agriculture as a separate subject in the schools, which is also done. Similarly, the official text-book published in 1901 by the Imperial Department of Agriculture for the West Indies, and entitled "Nature Teaching," is, in the opinion of Mr. Hedger-Wallace simply an elementary text-book on the principles of agriculture. The work at the Chicago Institute, and in the summer schools at the Missouri University, though called "Nature study," is also really agricultural.

(4) *Teaching which inculcates goody goody sentimentalism as a virtue in respect to animal and plant life.*—Sentimental "Nature study," which is rampant in the United States, Mr. Hedger-Wallace ascribes to the great preponderance of women teachers, in fact the word has come in America to be looked upon as being of the feminine gender. Some forms of "Nature-study" which come under the heading we are now considering, appeal strongly to feminine sentiments and moods, and most of the teaching exponents of the finest emotional teaching are women, and much of its literature is due to them. Such teaching, and that which puts words into the fictitious mouths of plants, and personifies all sorts of inanimate objects, has called forth strong protests from many authorities in the United States.

(5) *Teaching which fosters a second-hand knowledge of the wonders of the world, through "reading all about it."*—This is the lazy teacher's method, and is not by any means confined to America.

(6) *Teaching which attempts to veneer the ordinary school curriculum with "Nature."*—The form of Nature-study generally advocated in American normal schools and teachers' training institutes appears to be that which is to give a "Nature-tone" to all the lessons of the school.

(7) *Such informal teaching as endeavours to train the eye and ear to quick and accurate observation in respect to environment.*—This is the well-known work of Cornell University, and also that of Purdue University, and it is from this which we have borrowed, if we have borrowed at all. Purely informal Nature-study out-of-doors is what Mr. Hedger-Wallace himself favours, and many other English authorities are with him. There seems a necessity, however, we may say, for this to be supplemented with work also of an informal observational character carried on in schools, and we find provision for it in the Cornell system. In England is such teaching coming to be understood as falling under the title "Nature-knowledge?"

Although Nature-study in America, whether worthy of the name, or merely teaching of agriculture, was primarily intended to benefit

the agricultural interests, it is, Mr. Hedger-Wallace tells us, less common in rural than in urban schools; for while it is easier for the teachers in country districts to present Nature-study work, yet because these teachers are not so well prepared, the schools in cities and large villages are taking the lead.

Nothing could be more apt at the present time, when Nature-study is so much in the air in this country, than the appearance of Mr. Hedger-Wallace's contribution towards bringing it back to earth.

A PLEA FOR CHEAPER FRUIT.

I READ in one of the papers lately that Pine-apples similar to those costing 4*s.* or 5*s.* apiece in this country are sold in Singapore at 1*d.* each; this led me to think of certain other fruits which are sold here at almost prohibitive prices. Take Grapes, for instance, the most healthful and luscious of all fruits. Good hot-house Grapes often run to 2*s.* 6*d.* and 3*s.* 6*d.* per lb., consequently their use is restricted to the tables of the wealthy. [At the present time good Hamburghs fetch 6*d.* per lb. in some of the London shops. ED.]

A writer on fruit-growing states that hot-house Grapes might be grown on a large scale to retail at a figure that would yield a handsome profit to the producer. To do this would, of course, require a huge capital, and acres upon acres of glass. But what of that? It is generally reckoned that British pluck and enterprise are equal to the accomplishment of any project with money in it.

Of course it may be asked if the demand would prove equal to the increased supply. I venture to think it would. The mouths of the people, so to speak, literally water for this delicious fruit, which is both food and medicine.

Not only Grapes, but many other fruits might be cheapened by increasing the supply. [It would not pay the growers. ED.] In America, Peaches are to be had for the asking [?].

Then, would not the cheapening of Grapes and other choice fruits help to destroy the drink craving? A man with a bunch of good Grapes on his dinner-table would be far less likely to feel the want of his dinner-beer. *T. Owen, Fernbank, Oswestry.*

SHADES OF COLOUR IN SWEET PEAS.

AT the recent Shrewsbury show there was, considering the lateness of the season, an excellent and varied show of these beautiful flowers, and the collection exhibited by Mr. Robert Bolton, of Carnforth, was specially good. To those who do not wish to cultivate a great number of varieties, the task of selecting varieties is often a very perplexing matter, more especially to the amateur, and for his benefit I have pleasure in giving him a list of the finest varieties distinct in point of colour shown at Shrewsbury.

I will begin with those having dark tints, viz., Black Knight, of deep maroon, perhaps the darkest of all Sweet Peas; Othello, nearly as dark in tint. From these to the lighter shades of violet the following are excellent:—Fascination, Dorothy Tennant, and Captivation.

Carmine-rose to Scarlet. — Our breeders have not yet succeeded in raising a true scarlet-flowered Sweet Pea, and the nearest approach to one, so far as I have observed, are to be found in the varieties coccinea, Gorgeous, Mars, and Salopian. The next varieties in point of nearness to this colour are found amongst the following:—Miss Willmott, Lord Kenyon, Prince of Wales, Prince Edward of York, Lord Rosebery, and Geo. Gordon.

Pink, from the darkest to the lightest shades.—The Sweet Pea is to be obtained in many new and beautiful shades of these colours, and the following may be relied upon as being among the best, viz., Miss Dugdale, Triumph, Jennie Gordon, Colonist, Royal Rose, The Hon. F. Bouverie, and Prima Donna.

Dark Violet to Pale Mauve.—It may be said of the blue Sweet Pea as was said of the scarlet—we have no real blue; the Countess of Cadogan and Duke of Westminster being the nearest approach to dark blue that we have as yet. These, however, are really of a lovely deep violet-mauve. In shades of this colour to light lavender the following varieties are excellent: Emily Eckford, one of the best; Golden Gate, surely a misnomer, it being of the colour of the Neapolitan Violet; Lady Grizel Hamilton, a light lavender; Lady Nina Balfour, of a lighter shade; and Lottie Eckford.

Of White the following are excellent.—Sadie Burpee, a white flower; Blanche Burpee, and Emily Henderson.

Of shades of Salmon-Pink.—The Countess of Lathom is most distinct and pretty; and the following are also good, Grace Greenwood, Venus, and Mrs. Fitzgerald.

Of Cream or Sulphur Tints.—Lady Mary Gore, Golden Rose, and Queen Victoria, are amongst the finest varieties. *O. Thomas, 25, Waldeck Road, Ealing, W.*

The Week's Work.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Eucharis.—Plants required for flowering about Christmas-time and throughout January should be afforded very little water, and under ordinary conditions it may be withheld altogether for about three weeks or a month. If the plants are plunged in a bed, lift them out of the plunging materials during this resting period. On restarting them, afford the plants some clear manure-water occasionally, but do not apply this, nor even water, in such large quantities as is usually thought necessary.

Begonia Gloire de Lorraine.—The flowering season of this indispensable Begonia is greatly lengthened, and the flowers become deeper in colour and larger in size, if the plants are removed to a cooler and more airy house than was needed whilst making growth. The plants may therefore be placed in conservatories, corridors, &c., that are kept at an intermediate temperature. When water is required, take the opportunity to add a little clear manure-water made with cow-dung.

Campanulas.—Plants of the C. isophylla group having passed the flowering stage are throwing up new shoots from their centres. If these shoots be taken off now, and struck under cool conditions, they will make much better plants for another year than can be raised from cuttings taken in the spring. The only two varieties of this group that appear to be worth growing (and these are charming) are C. isophylla alba and C. i. Mayii, the latter being larger and better in every way than either C. isophylla, which is shy in flower and in growth, or C. gracilis, which is commonly substituted for the latter.

Mignonette.—The earlest batch of pot Mignonette should be removed from the cold frames to the greenhouse shelves, but there must be no attempt to hurry the plants forward, as this would induce them to make new side-breaks, and the central spike would then become a very poor thing. The weather should be watched carefully, so that the later batch intended for flowering from March onward does not get frost-bitten. If the frame in which they are growing is a light one, and in a good position, the plants will do best there; and at the end of the month remove them to the greenhouse.

Schizanthus. — Place these on a shelf in good light, and in a rather drier atmosphere than they would get in a frame. If the plants need further thinning, do this at once.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

The Flower Beds. — The majority of the summer bedding plants are now becoming exhausted, or the blossoms spoiled by heavy rains and foggy weather. No time need be lost therefore before clearing them away. Many of the ornamental foliage plants used for outdoor decoration, such as Aralias, Grevilleas, Acacias, Melianthus major, Abutilons, Wigandias, &c., are of great value for furnishing large conservatories, corridors, and such like places; and if such as these be lifted carefully, with good balls of soil attached, and potted up in good soil and placed in a close, moist atmosphere, where they may be syringed frequently, they will soon become re-established and make effective plants for use in cool and sometimes draughty positions, in which choicer plants would suffer badly. When the beds have been cleared, deeply dug, and the necessary amount of manure afforded them, steps should at once be taken to refill them with bulbs, spring flowering plants, and dwarf shrubs of a bright and ornamental character, that will impart a cheerful appearance to them during winter and spring. The ground in which bulbs are to be planted should have the manure dug in deeply, so that the bulbs will not come immediately into direct contact with it. Among other excellent spring flowering plants are Pansies, Violas, Alyssums, Aubrietias, Wallflowers, &c. The variegated Kales may also be used to good effect, their richness of leaf colouring is surprising, varying from the richest reds and pinks to the purest white.

Plants in tubs.—Half-hardy kinds, such as Agapanthus, Nerium, Brugmansia, Pomegranates, &c., must now be taken indoors, and placed in a cool, light position, where protection may be afforded them from frost. The evergreen kinds need just sufficient water to prevent the leaves flagging, and deciduous kinds will need little if any after the leaves have fallen. A good syringing occasionally will suffice to maintain the plants in a healthy and clean condition.

Amaryllis Belladonna, grown in warm, well-drained positions, in the front of hot-houses, or at the base of a south wall, are much later than usual in producing their flower-spikes; this is due undoubtedly to the indifferent season we have experienced. If the ground be very dry, an occasional soaking with clear soot-water or weak liquid-manure may be afforded; and to prevent the flowers from injury by frost or heavy dews, some tiffany or other light material may be placed over the blooms in such a manner that it will not rub them.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Budleigh, Devonshire.

Apples and Pears.—At the end of the coming week the majority of fruits should be gathered, excepting perhaps such Apples as Lord Burghley, Scarlet Nonpareil, Sturmer Pippin, Adams' Pearmain, and Northern Spy; and the latest Pears as Beurré Easter, Nouvelle Fulvie, Josephine de Malines, Doyenné d'Alençon, and President Barabé. Gather the fruits when they are quite dry; and any nets that may have been used against the birds should be carefully rolled up, and afterwards suspended in a dry, airy room or shed. Examine such Pears as Louise Bonne of Jersey, Thompson's, Beurré Hardy, and Beurré Bosc, every few days, selecting the most forward for present use. It is possible to have such a collection

of Pears as to be able to maintain a daily supply of ripe fruits from the date of Williams' Bon Chrétien ripening until about Christmas, but the good varieties that will keep after that date are few. We store all our Pears with the Apples, and find that each variety ripens satisfactorily without removing them to a slightly warmer position, which many have to do. Perhaps our genial climate explains this.

Hints on Work.—Take full advantage of the fine weather to use the flat hoe freely between fruit trees, and if there are many weeds lightly rake the ground over afterwards, removing the weeds to a smoulder fire. It may be necessary to remove late runners from Strawberry beds before cleaning them, as the plants seem to have thrown out an extra number this rainy season. Trim over the plants of St. Joseph and Hautbois as soon as the fruits have been gathered, and if it is thought advisable to make new plantations of either sort, such work may yet be carried out, setting out the plants at 1 foot apart each way on a deeply-dug piece of ground that is in good heart. Lift the runners carefully with a fork, and make the soil very firm around each plant. In this locality Walnuts are almost a failure, very few having any kernel; and judging from the appearance of the Spanish Chestnuts the crop will be worthless, but it is some years since we had such heavy crops of Filberts of good quality.

THE KITCHEN GARDEN.

By T. Turton, Gr. to J. K. D. Wingfield Digby, Esq., Sherborne Castle, Dorsetshire.

Seakale.—If this crop is required early, lift a batch of the roots, and after trimming them place the plants outside closely together in an upright position in a box, without any soil for about a week. Meanwhile prepare the fermenting material, consisting of three parts tree-leaves and one part horse-droppings, throwing it into a heap and turning it over several times during the next few days. If this season's hard tree-leaves cannot be had in time for this early batch, probably last season's leaves may be had sufficiently fresh from old hotbeds. I prefer to use these rather than such soft leaves as Horse-Chestnut, Lime, or Sycamore. Six to eight roots of Seakale, according to strength, should be put into an 11-inch pot, and after applying water and allowing the soil to settle, place them for a few days on the top of the fermenting material. When the heat of the bed has commenced to subside, plunge the pots down to the rims, and make the leaves firm around them, unless there is still danger of over-heating. I am assuming that boarded-up bins with close-fitting shutters are provided for forcing Seakale in the Mushroom-house, which is by far the most convenient method. Other suitable places, however, may be found in most gardens where roots can be forced early, such as brick pits in forcing-houses, that can be fitted with shutters and made comparatively air-tight; or the pots of roots may be plunged in tree-leaves in a wooden trough in the forcing-house, and covered with an inverted flower-pot, stopping the drainage hole. Unless the stock of plants is limited, do not save the roots from plants forced thus early, for usually it is possible to save as many cuttings as are necessary from the successional batches, which are better matured. When cuttings are taken, they should be made from the straightest and stoutest roots, and be 6 inches long. To insure having the cuttings planted the right end downward, cut them over straight at the top, and make a slanting cut at the bottom; select a sheltered spot outside, and light soil in which to lay them until the spring.

Roots.—If Cheltenham Green Top and other Beets are growing to too large a size, take them up and pack them into a bank with sand or fine soil in a cool, frost-proof, light cellar. Remove some of the longer outside leaves. Smaller rooted Beets may be left in the ground three or four weeks longer, provided the weather keeps mild. Carrots may be lifted if fully grown, for autumn rains with mild weather may cause many of them to split. Store them in the same way as Beet, but in a somewhat drier place. Maincrop varieties sown in June should be left in the ground for several weeks yet, and in moderately dry soils they may be left all the winter if protected with bracken or other dry litter. Pull up fully grown roots of Turnips and stack them outside against a north wall, covering them with bracken or straw, and also corrugated iron or other covering to throw off rains.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith, Scotland.

Tomatos.—Well established plants well set with fruits should continue to yield fruit until January if afforded a mean temperature of 60°, and a dry atmosphere, with some fresh air admitted on all favourable occasions. The fruiting-pots should at first be half filled with soil containing a little bone-meal, and afterwards afforded top-dressings of soil mixed with Thomson's Manure. The best Tomatos I have seen this year were grown in the surface-soil taken from a Vine-border that had been dressed with this manure.

Pineapples.—The plants of Queens that have fruited, from which a sufficient number of suckers have been secured, may be cleared away. The wood and glass of the structure should then be thoroughly washed with soapy water, and if the walls be limewashed or painted, a fresh start will be possible under clean conditions. Procure sufficient fresh tan that when mixed with the old will afford a plunging depth of about 12 inches. Remove the Queens, now in their fruiting pots, from the succession pit, and plunge them in this bed, and in order to keep them quite at rest until January, afford them scarcely any water during the next two months. Reduce the bottom-heat gradually to 75°, and the top-heat to 60°, or on very cold nights to 55°; the atmosphere should be dry. For the suckers in the succession-pit the bottom heat during winter should be 75°, and the night temperature 55° to 60°, according to weather, with 65° in the day during sunshine. Afford a little ventilation in mild weather, and keep the atmosphere dry. The plants will need no water at the roots during the next two months. The winter-fruiting Pines, including Smooth Cayenne, Charlotte Rothschild, and Black Jamaica, should be afforded a bottom-heat of 85°, and a night temperature of 65°; but if the weather be very cold, 60°. Do not syringe the plants, but damp the paths daily, and examine the plants once a week, affording water to those that need it to keep them in a growing condition; but it is very necessary to guard against making the soil too wet. Manure-water may be afforded plants that are actively swelling fruits, but to no others. Well-rooted suckers of the above varieties may be potted this month into 11-inch (fruiting) pots, using a compost of rather light fibrous loam and bone-meal, which should be dry when used; pot firmly. These may be plunged in the structure where similar varieties have finished fruiting.

Peaches, Nectarines, and Cherries in Pots.—Remove 3 inches of the surface of the soil, and top-dress with a mixture of fresh turfy-loam, bone-meal, and Vine-manure. Examine all pots to see if the drainage is in good condition; pot firmly. Trees that have not been repotted for two years should have their roots shaken out, and be repotted. Start the trees with a very mild bottom-heat, and an atmospheric temperature of 45° to 50°.

THE ORCHID HOUSES.

By W. P. Bound, Gardener to J. Colman, Esq., Gatton Park, Reigate.

Dendrobium Phalænopsis Schroderiana, D. biggibum, and D. Statterianum.—If these plants are allowed to remain in the stove Orchid-house during the time they are in flower, let it be in the driest position possible. I prefer to take them to the Cattleya-house, but it is not advisable to remove them from the growing house until the majority of the flowers have expanded. Do not allow the spikes to remain so long upon the plants as to cause exhaustion. When flowering is past, the plants will require but little water until the young growths start in the spring. Place them in the lightest position possible in the stove Orchid-house.

Dendrobium formosum giganteum.—As this useful and showy variety passes out of flower, gradually decrease the amount of water afforded the plants. During the winter months they require practically no water if they are kept in the intermediate-house, as they should be.

D. densiflorum, chrysiflorum, Farmeri, chrysotoxum, and suavissimum.—Most of the growths on these varieties are now sufficiently developed to allow of the plants being removed to cooler and drier quarters. They should be so placed that every ray of sunshine may shine directly upon them. They will require but little water, especially if Fern-rhizomes have been substituted for potsherds as drainage; the less the better, providing the pseudo-bulbs remain plump.

D. fimbriatum and D. moschatum.—Plants of this section will require a fair amount of water until the terminal leaf is visible. Afterwards the plants may be rested in the growing house with perfect success by simply reducing the supply of water.

D. Primulinum and D. Parishi.—A thorough drying should be afforded these when growth is mature. Place them in a light position in the intermediate-house.

D. Brymerianum.—The removal of this plant when growth is completed from the stove Orchid-house to the intermediate-house is sufficient to induce the necessary rest. This species enjoys a moist compost all through the year.

D. atro-violaceum and D. spectabile.—The new pseudo-bulbs on these New Guinea species are nearly completed, and roots will soon be emitted; and this is the most favourable season for renewing the surface material or providing fresh receptacles should they require them. Unless repotting is absolutely necessary, it will be better to re-surface the plants. Let the surface compost be carefully picked out, and renewed with equal parts of peat and sphagnum. If repotting be carried out, great care must be exercised in removing the plants from the pot or pan; then, beyond removing decayed portions, do not disturb the ball. Provide good drainage and pot in the compost given above, keeping the base of the new pseudo-bulbs slightly above the level of the pans, which are best suited to their culture. Put the plants in the lightest position possible in the stove Orchid-house, and do not allow them to become very dry. The flower-spikes will soon be visible on D. atro-violaceum.

THE APIARY.

By Expert.

Work in General.—Remove all the section crates from stock-hives, and place the same out of the reach of the wax-moth and dust; and to do this, wrap each crate with the empty sections in brown paper, and sprinkle a small quantity of powdered naphthaline over the packages. Honey in sections should be extracted, or given to the bees. Close the bees up in eight or ten frames, and place an extra dummy behind the frames, and where there is space fill it with cork or dried sawdust, or failing these with chaff; and make a chaff cushion, and place it on the top of the other coverings, placing a piece of paper over this; and should the roof leak and the paper get wet, replace it with a dry piece, if quilts are not plenfiful enough. The covering in the first place should be put on the top bars, this being of American cloth, as this lies very closely, as well as prevents the wax-moth from harbouring, as it often does in bits of carpet. Do not leave any pieces of honeycomb about, and clear all away so as to prevent robbing; or if this is going on, sprinkle with carbolic powder, and keep on with it until robbing ceases.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY, OCT. 20 { National Chrysanthemum Society, Floral Committee Meet.

TUESDAY, OCT. 21 { Royal Horticultural Society's Committees Meet.

SALES FOR THE WEEK.

MONDAY to FRIDAY, OCT. 20 to 24—
Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 11 o'clock.

MONDAY, OCT. 20—
At the Mart, E.C., an excellent Market Garden, Fruit Farm, and Nursery Property, known as Crastock Farm, Woking, by Protheroe & Morris, at 2 o'clock.—Bulbs, Azaleas, and Palms, at Steven's rooms.

TUESDAY, OCTOBER 21—
Sale of Nursery Stock at Horsell Birch Nurseries, Horsell, near Woking, by order of Mr. A. Knowles, by Protheroe & Morris, at 12 o'clock.

WEDNESDAY, OCTOBER 22—
Azaleas, Rododendrons, Palms, &c., at 67 and 68, Cheapside, by E.C., by Protheroe & Morris, 5—Lilium longiflorum, Orchids, and Bulbs, at Stevens' rooms.

FRIDAY, OCTOBER 24—
Collection of Orchids, formed by H. Simonds, Esq., at 67 and 68, Cheapside, E.C., by Protheroe & Morris at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick—48·8°.

ACTUAL TEMPERATURES:—

LONDON.—*October* 15 (6 P.M.): Max. 59°; Min. 50°. Wind W.N.W., light; rainy.
October 16.—Weather cloudy, and dull generally.

PROVINCES.—*October* 15 (6 P.M.): Max. 55°, Exeter; Min. 50°, Bury St. Edmund's.

The Horticultural Hall.

It is with the greatest satisfaction that we give publicity to the following letter, which we take from "The Times" of Thursday last:—

"His Majesty the King, having heard of the project in hand, has commanded the following letter to be sent to Captain Holford, C.V.O., C.I.E., a member of the Council of the Society, enclosing His Majesty's contribution of One Hundred guineas to the fund:

'Balmoral Castle, Sept. 30, 1902.

'My dear Holford,—The King has been much pleased to hear of the intention of the Royal Horticultural Society to commemorate its Centenary in 1904 by the erection of a new Horticultural Hall for the use of the Society.

'I showed the King Sir Trevor Lawrence's letter, and His Majesty commanded me to tell you that he perfectly remembered having addressed the Society in 1890 as Sir Trevor states—and you are to tell him from the King that the words His Majesty spoke in 1890 he repeats now, if possible, with a stronger feeling than ever, not only of the desirability, but of the actual necessity of such a building as it is proposed by the Society to erect.

'Sir Trevor and the Society, the King commands me to say, have His Majesty's best wishes in their undertaking, and as a small donation from His Majesty by way of showing the interest he takes in the Royal Horticultural Society, I am now commanded to forward you a cheque for One Hundred guineas towards the fund which is being raised for the new building.—Believe me, my dear Holford, very truly yours,

'D. M. Probyn.

'To Capt. George Holford, C.V.O., C.I.E.'

"Subscriptions may, if desired, be made payable half at once and half at midsummer, 1903. Cheques should be drawn in favour of the Royal Horticultural Society, and crossed 'London and County Bank.'—Yours, &c.,

"W. Wilks, M.A., Secretary.

"117, Victoria Street, Westminster, Oct. 15."

Boilers, boiler-setting and stoking.

THE subjects of setting, stoking, and general management of garden boilers dealt with in this article, are of so great importance in these days of dear fuel, to gardeners and their employers, that we are glad to publish the pertinent remarks of Mr. LOUIS PEARSON (of Beeston), contained in a paper on hot-water boilers, recently read before the Institute of Heating Engineers. Many of the technical details would probably not interest our readers, but there are several practical hints to those interested in horticultural work. In the paper Mr. PEARSON speaks first of the similarity between the modern sectional cast iron boilers, and those in use twenty years ago, and gives illustrations of "Wright's Flame Impact," "Witherspoons," "Red Rose," and "Foster's terminal end saddle," all made twenty-five years ago. He then goes on to show that these old boilers were both economical and efficient, but they were discarded on account of their faulty jointing, and unequal thickness of metal, both of which defects have now been overcome in the modern boilers. He makes out a strong case for cast iron boilers in preference to wrought iron and steel, as the following will show:—

"Cast iron boilers can be made in sections which enable them to be fixed in positions where wrought iron boilers could not be; it also enables the fire-box to be made in deeply corrugated or tubular forms, which not only presents a much larger surface to the direct action of the fire, but also tends to check the flow of gases and to mix them thoroughly with the oxygen, thereby causing better combustion of and economising fuel.

"Cast iron is also much less affected by oxidization, which is a great consideration in our climate, and where many boilers are not at work for more than seven months of the year, for boilers, like men, rust out more quickly when idle, than when at work. Experiments made by the Philadelphia Scientific Institute, show that as a transmitter of heat, cast iron is more effiacious than wrought by over 10 per cent., principally on account of it being more porous; but I think the chief reason for the greater economy of cast boilers is due to the corrugations and the tubes that can be readily and cheaply placed in the fire-box, which not only add very largely to the direct heating surface, but break up and thoroughly mix the gases as they leave the fire-box, causing a better combustion. Heat is transmitted by radiation, convection, and conduction. It is therefore quite plain that while direct heating surface in the fire-box is subject to all three influences, the surface in the flues of boilers can only be subject to one, viz., convection; and when the flue is covered with soot, which is so very often the case in brick-set boilers, the efficiency of the surface is very low."

We also quote his paragraph on "Combustion:" "I think this subject should be fully considered before designing a boiler of any description, or criticising those already made. Heat is, you are probably all aware, caused by the chemical union of various elements, which in the case of burning coal and coke consists principally of the oxygen of the atmosphere being mixed with the carbon and hydrogen (especially the latter, the heating power of hydrogen being three times greater than that of carbon); this affinity is greatly increased at a high temperature. As there is only one part of oxygen to four parts of nitrogen in the atmosphere, we see the necessity of introducing a large amount of air to insure perfect combusion; in fact, providing that the air is sufficiently heated, I think it is almost impossible to introduce too much in a low pressure hot-water boiler. Mr. H. J. MILLS, in his treatise on boilers, puts the amount of air required to consume one ton of coal perfectly at 120,000 cubic feet."

It will be seen from the foregoing remarks the reason for a thin fire giving a much better result than a thick one.

As a rule, it is safe to say that the smaller the fuel the thinner the fire should be, and the larger the fuel the thicker, on account of the larger interstices in the use of the latter. It is a common practice to leave the fire-door open for a short time after firing, to consume the smoke; this of course is wrong, for though you get a large supply of oxygen, yet, as it is at a low temperature, and does not therefore combine properly with the gases, the boiler is being cooled instead of heated, and in the case of wrought iron or steel it also proves injurious to the plates.

The details of a test made by Mr. PEARSON will perhaps interest our readers. The boiler was a cast-iron horizontal sectional boiler, fifty-four inches long by twenty-two inches by eighteen inches (inside measurements); fire grate eight square feet; direct heating surface fifty feet. Flues taken at half value; estimated power (allowing forty-one feet of four-inch pipe per foot of direct surface, two thousand and fifty feet of four-inch pipe, actual one thousand nine hundred and fifty feet). The boiler was worked to its full capacity during thirteen hours per day, and was banked up to burn slowly for the remaining eleven hours; fuel consisted of half slack and half gas-coke. Fuel consumed equalled thirty hundredweight per week of six days (the fire was banked up during Sundays). This is a favourable result, and could probably be considerably improved by substituting coal for slack.

Most of us have been troubled at some time or other with damp stoke-holes, so we make no apology for giving this paragraph *in extenso*. "Damp Boiler Holes.—These are often a source of considerable trouble to both heating engineers and their clients, and I think most of the trouble is caused by engineers trying to keep water out of stoke-holes built with flat sides and bottom by merely laying the bricks in cement or lining with Val-de-Travers without considering the pressure. This is very considerable for the total amount on a boiler-house floor, fifteen feet by ten feet by five feet deep, supposing the subsoil water to be level with the top of the brickwork is fifty-four thousand pounds, or nearly twenty-five tons. It is therefore quite apparent that this must be provided for. With small medium-sized boilers, the simplest and best way is to place the boiler in a wrought-iron tank, which should be well tarred inside and out, and paved with blue bricks. Where the boiler is very large,

CORYDALIS THALICTRIFOLIA, CHINESE PLANT: SHOWN BY MESSRS. VEITCH. FLOWERS WHITE.

there should be an inverted arch built under the floor of the stoke-hole and tied to the walls, which should be at least fourteen inches, and have an inch space left between the four-and-a-half-inch and nine-inch work, to be afterwards filled with Val-de-Travers. Even with this plan the workmanship and material must be of the best to ensure success."

ROYAL HORTICULTURAL SOCIETY.—The next meeting of the Fruit and Floral Committees of the Royal Horticultural Society will take place on Tuesday, October 21, in the Drill Hall, Buckingham Gate, Westminster, from 1 to 4 P.M. A lecture on "Hardy Summer and Autumn Flowering Bulbs," will be given by Mr. P. RUDOLPH BARR, F.R.H.S. At 3 o'clock the President of the Society will confer the Victoria Medal of Honour on Mr. JOHN T. BENNETT-POË, M.A., Mr. HENRY CANNELL, and Mr. GEORGE MASSEE, F.L.S.

—— At a general meeting of the Royal Horticultural Society, held on Tuesday, October 7, forty new Fellows were elected, making a total of 975 elected since the beginning of the present year.

SCIENTIFIC RESEARCH IN INDIA.—In continuation of the announcement made a few weeks ago (September 4), we learn from the *Times* that a resolution has been published stating that the Government of India has come to the conclusion that a central authority is needed to ensure that the work of scientific research in India is distributed to the best advantage, that each investigator confines his researches to the subject with which he is most capable of dealing, and that energy is not wasted by the useless duplication of inquiries, or misdirected by lack of co-operation amongst the various departments. Hence, a board of scientific advice is to be formed, comprising the heads of the meteorological, geological, botanical, forest, survey, agricultural, and veterinary departments, and other scientific officers of special attainments. This board is to prepare every year a general programme of research, and a report describing what has been done. The main object of the scheme is to promote the economic development of the country. *Nature.*

NATURE-STUDY.—It is suggested by Mr. R. HEDGER WALLACE in the October number of *Nature Notes* that GILBERT WHITE'S house, which, as has already been stated in these columns, is offered for sale, should be purchased and used as a school of nature-study. "What," says Mr. WALLACE, "could well be housed at Selborne, and would assist the nature-study movement, is a library—say the 'Gilbert White Memorial Library'—which would illustrate what has been and is the influence of his teaching over the wide world—especially the English-speaking world. The number of such books is by no means small, and when once the library is formed, if it be kept up to date, it would be of very great service indeed to all interested in nature-lore and nature studies." *Nature.*

CRYSTAL PALACE.—We have received from Mr. H. GILLMAN, General Manager, a prospectus regarding an International Engineering, Machinery, Hardware, and Allied Trades Exhibition, which will be held at the Crystal Palace in the spring of next year. This exhibition is under distinguished patronage, and it is stated that there is every indication of it being a success. We observe in the section hardware, of matters interesting to cultivators of the land, agricultural and horticultural tools and implements, oils, paints, and colours, wirework, garden furniture, fencing, architectural ironwork, and agricultural machinery.

HONOUR FOR MR. MARTIN J. SUTTON.—At a recent meeting of the Reading Town Council, the MAYOR informed the committee that it was intended that the statue of His Majesty King EDWARD VII., to be presented to the town by Mr. MARTIN JOHN SUTTON, should be unveiled on Wednesday, November 5, and that it had been suggested that the occasion would be a suitable one for the exercise by the Council of the powers given by the Honorary Freedom of Boroughs Act, 1885, by admitting to the Honorary Freedom of the Borough Mr. Ald. PALMER, M.P. for the town, and Mr. MARTIN JOHN SUTTON. The recommendation of the Committee having been considered was adopted by the Borough Council, and the two gentlemen having expressed their willingness to accept the proposed honour, their admission to the Honorary Freedom will take place at a meeting of the Council to be held on Nov. 5 next.

A NEW COLLEGE FOR WOMEN.—A college in connection with the Horticultural College at Swanley in Kent has been established recently at Ridgfield, Wimbledon. Here young women will receive training fitting them for life in the colonies, with special regard to gardening, dairying, and other out-door pursuits. The syllabus includes Gardening Work (market and private), Domestic Economy, Fruit Preserving, Lectures on First-aid by the St. John's Ambulance Association, Instruction in S. African Languages, &c. The Hon. Sec. is Miss G. M. GODDEN, Ridgfield, Wimbledon.

LOUGHBOROUGH AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—This Association are offering special prizes in competition for essays on "How Best to Supply a Family with a Succession of Vegetables for the Whole Year." The 1st prize, £1 1s., is given by the President, W. C. BURDER, Esq., J.P.; the 2nd prize, an article value 10*s.* 6*d.*, by Messrs. F. ARMSTRONG and E. MARSTON; 3rd prize, 5*s.*, by the Association. Open to only *bonâ fide* members of the Association.

THE ROYAL SOCIETY OF AGRICULTURE AND BOTANY OF GHENT.—The monthly meeting of these societies, for the adjudication of horticultural products, took place on Sunday, October 5, in the Casino, Ghent, when the following awards were made in the First Section, viz.:—Certificates of Merit to M. TH. PAUWELS, for Cattleya aurea var. Prince of Orange, C. Hardyana alba Mdlle. Lizie Valcke, unanimously, and with the compliments of the judges; and a number of plants of C. aurea. Also to M. A. PEETERS, Brussels, for Lælio-Cattleya eximea (hyb. L. purpurata × C. Warneri); Cattleya Pheidona (C. intermedia × C. maxima), with unanimity; C. aurea superba, with acclamation; C. La Belle (C. gigas × C. Harrisoni), with unanimity; and L.-C. (L. tenebrosa × C. gigas). To M. le Marquis DE WAVRIN, for Lælia præstans var. Lindeni, Cattleya Loddigesii alba Princess Albert de Belgique, by acclamation; L.-C. Gottoiana (hyb. C. labiata Warneri × L. gr. tenebrosa), with unanimity; Lælia præstans virginalis, with acclamation, and compliments of the jury; and Cattleya labiata autumnalis. To Messrs. SANDER & SONS, Bruges, for Cattleya Schilleriana Miss Kate Brazier, Cattleya Loddigesii innocens, and L.-C. Normani superba (L. præstans × C. Dowiana), this last by acclamation, and with the compliments of the jury. In the Second Section, Certificates of Merit were awarded to M. VAN HAUT-BOGAERTS, for a basket of flowers of Orchids and Roses, exhibited in a novel manner in water (unanimously); and for a group of Orchids and Roses. A Botanical Certificate was awarded to M. AD. DEMEYER for Thibaudia floribunda.

BECKENHAM HORTICULTURAL SOCIETY.—The first lecture of the winter session was given in the Church House on Friday evening, October 3, Dr. R. M. H. RANDALL, Chairman of the Urban District Council, in the chair. After complimenting the Society on its good work in the past, and the excellent syllabus for the session, he introduced Prof. J. PERCIVAL, M.A., F.L.S., who gave a lecture on "Affording water to Plants." The lecture throughout was most interesting and instructive. At the close numerous questions were put to the lecturer, and much information elicited. The next lecture is on "The Growth and Cultivation of Misleto," October 24, by W. GROVES, Esq.

FLOWERS IN SEASON.—We received from Messrs. J. PEED & SON, West Norwood, on Tuesday, 14th inst., a boxful of single-flowered Begonias, picked from plants growing in the open ground the same morning, which fact, considering the unfavourable weather, is rather remarkable. The flowers were of large size, fresh-looking, and without blemish.

SOCIETY FOR THE PROTECTION OF BIRDS.—The subject of this year's Essay Competition for the prizes of £10 and £5 annually offered by the Society for the Protection of Birds, 3, Hanover Sq., W., is "Birds in the Field and Garden: their economic value to man." The Society's object is to collect facts and opinions respecting the utility of birds as insect and weed destroyers, a matter which has in recent years compelled attention in various parts of the world, but is still only very imperfectly understood and appreciated. Full particulars may be obtained from the Hon. Secretary.

HORTICULTURAL COLLEGE, KOESTRITZ, THURINGIA.—The Semestral Report of the institution, and list of frequenters to the school, has reached us, from which it appears that the institute, from very small beginnings, is one of the gardeners' schools with the greatest number of students in Germany. It has gradually increased the number of students from eight in the summer half-year of 1887, to 152 in the winter half-year of 1902. This figure includes only gardeners by profession, who visit the institution for improvement, but not tree caretakers, highway and road watchmen, and such persons, who are directed to the small fruit-tree nurseries and institutes. Since its establishment, three English students have received their gardening education at Koestritz. The director is Dr. H. SETTEGAST.

THE KING'S VISIT TO WHITTINGHAME AND TYNINGHAME.—His Majesty the KING, who spent two nights and a day last week at the Scottish Brighton—North Berwick—paid a visit on Friday to Tyninghame, Lord HADDINGTON'S seat in East Lothian. His Majesty was accompanied by the Prime Minister, who previously drove the KING through the Whittinghame grounds; and on the way to the Earl of HADDINGTON'S home, passed through one of the famous Beech avenues, planted by the latter's ancestor in the early years of the eighteenth century. The major part of the time he spent at Tyninghame was devoted by the KING to an inspection of the gardens, including that in proximity to the mansion, planted more particularly with bright flowering plants; and the walled garden, with long and broad borders of the best herbaceous and bulbous plants. The borders of yellow flowering plants, Phloxes, &c.,

bounded by grassy walks, were still aglow with bloom. The covered walk of Apple-trees also attracted the KING'S attention, as well as a quaint "garden within a garden," which occupies a nook at Tyninghame. The little flower-plots fronting the cottages on the estate, and to which many prizes are awarded annually, also called forth appreciative remarks from His Majesty, who, before leaving, planted an Oak-tree in the "Wilderness" near the mansion.

THE KING AT NORTH BERWICK. — The KING during his short stay at North Berwick found time to plant a purple Sycamore (Acer pseudoplatanus atro-purpureus) in Quality Street, immediately opposite the Reading Rooms. The tree was about 12 feet high, and was furnished by Mr. JOHN DOWNIE, Edinburgh, whose manager, Mr. WILLIAM MACKINNON, assisted at the planting.

CROYDON AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT SOCIETY.—The fortnightly meeting was held in the Society's room at the Sunflower Temperance Hotel, on Tuesday, 7th inst., Mr. W. J. SIMPSON presiding. By the courtesy of the Croydon Public Libraries Committee, *per* Mr. JAST, chief librarian, the members had the pleasure of seeing a complete set of the magnificent work on Orchids, *The Reichenbachia*, also some volumes of choice Ferns exhibited upon the tables. On the proposition of the Chairman, seconded by Mr. HUMPHREYS, the Society's thanks were accorded to the Libraries Committee.—In a few appropriate remarks the Chairman introduced Mr. NEVE, gr., Lindesham House, Wokingham, who gave an interesting lecture on "The Renovation of Old Fruit Trees," which was illustrated by photographs and excellent fruit from the trees. The lecture was much appreciated by all present. Several questions having been put to and answered by Mr. NEVE, a unanimous vote of thanks, proposed by the Chairman and seconded by Mr. W. HARRIS, was given him. —The subject for October 21 will be, "How to make an Alpine Garden" (from personal experience in the Alps and elsewhere), illustrated by photographs, diagrams, &c., by Mr. E. LOVETT.

SECOND FLOWERING OF LABURNUM (see pp. 253 and 271). — Presumably, this is an instance of flowers produced at the ends of the extension-shoots, as in the case of some Pears, rather than on the fruit-spurs. What induces continuous growth in some cases instead of arrest of growth and storage of food in another, is a matter of conjecture, seeing that it occurs in some specimens only, while others growing apparently under the same conditions do not show it.

LOUGHBOROUGH GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.—The opening meeting of this Association was held in the Town Hall, on Tuesday evening, October 7, Mr. J. T. SMITH, Derby Road Nursery (Chairman of Committee), presiding over a good attendance of members. Mr. CHAS. E. PEARSON, of the Chilwell Nurseries, Lowdham, Notts, gave a very able and instructive lecture upon "Hardy Fruit Tree Pests," with instructions as how to combat their ravages. He cautioned his hearers against the use of advertised insecticides at the strength as usually put on the market; invariably they were too strong, and calculated to do injury to the trees if applied at full strength. Having referred to the green-fly and black aphides, he considered there was no insecticide equal to quassia chips and soft-soap applied in the proportions given. American blight was one of the most difficult pests to deal with. 1 pint Jeyes' Sanitary Fluid, or 1 quart of creolin, 400 grains "corrosive sublimate," to 2 gallons of water, applied with a brush was to be depended upon to destroy this pest. Red-spider, caterpillars, scale, insects, and Pear-slug were all referred to, and recipes given for their eradication. As a means of applying the various insecticides in a small way, the Abol Syringe was, he thought, the best distributor; and for larger gardens, the Vermorell's Knapsack Sprayer. The lecturer mentioned the need gardeners had of a knowledge of entomology; natural history, too, he thought, might aid in the preservation of our insect-feeding birds, which were often ruthlessly destroyed.

FRUIT GROWERS AND RAILWAY COMPANIES. —A largely attended meeting of market-gardeners was held at Worcester on Saturday in connection with the National Fruit Growers' Federation, to consider the most important points to be laid before the general managers of railway companies by the deputation of fruit growers on November 4, and to appoint delegates. A resolution was carried declaring the most important points to be: improvement in loading, use of refrigerator cars, closed but ventilated trucks, more prompt delivery from terminus to market, quicker return of empties, and the clearer definition of owners' and companies' risks. Messrs. JOHN IDIENS (Worcestershire), C. D. WISE (Gloucestershire), and RADCLIFFE COOKE (Herefordshire), were appointed to represent their respective counties at the conference.

BOTANY AND MATERIA MEDICA FOR MEDICAL STUDENTS.—"I will, however, strongly urge you to pay more attention to the subjects of botany and materia medica than is now commonly given. These subjects were more carefully studied by your predecessors of thirty and forty years ago than they are now. A study of botany constitutes an invaluable method of training for medical practice. The present neglect of a careful study of materia medica is likely to lead to undesirable results by destroying the first principles of the art of prescribing with readiness and skill. The prescriptions one meets with to day are sometimes calculated to bring ridicule upon the prescriber from the counters of the pharmacist, and it is not possible to be a skilful practitioner if you are not well trained in practical pharmacy." *Sir Dyce Duckworth, in "British Medical Journal," October* 4, 1902.

PUBLICATIONS RECEIVED.—*The Purchase of Feeding-Stuffs* treats of the chief feeding-stuffs, comparative value of foods, and general composition of the same. Leaflet No. 74, issued by the Board of Agriculture, of which copies may be obtained free of charge and post-free on application to the Secretary, Board of Agriculture, 4, Whitehall Place, London, S.W. Letters of application so addressed need not be stamped.

CORYDALIS THALICTRIFOLIA

(*Franchet*).

(Our Supplementary Illustration, also fig. 94, p. 289.)

WITH NOTES ON OTHER SPECIES FROM CENTRAL CHINA.

THIS is a charming rock plant, which has lately been introduced into cultivation by Messrs. Jas. Veitch & Sons, from seeds collected by Mr. E. H. Wilson at Ichang in Central China. Kept in a greenhouse it remains in flower throughout the winter months. Placed in the open, as at the rockery in Kew Gardens, it flowers all the summer.

This plant was originally described by Franchet,* from dried specimens sent by me to Kew, under Nos. 742 and 3463. Subsequently Faber found it in the Ningpo mountains. In the wild state, the plant occupies only situations similar to those on which occurs Primula sinensis, namely, on rocky ledges of the cliffs in the glens and gorges of the Yangtse, west of Ichang, in the limestone formation. The Corydalis, however, is somewhat different in its habit of growth; provided with a large woody rhizome, it becomes embedded in the crevices of the rocks, where there is no soil. The Primula does not sink into the rocks, but grows amidst the *débris* of former generations, quite loose on the rocky ledges. The Corydalis flowers in March and April, and thrives thus in warm, soil-less situations. Its rhizome is used by the Chinese of the neighbourhood as a drug, being a substitute for the valuable cultivated Huang-lien or Coptis Teeta. The popular name of our plant is consequently Ai-huang-lien, or Cliff Coptis. The plant may be described as follows:—

A perennial rock plant of "xerophytic" habit, furnished with a long, large, woody rhizome, from which the petioles arise. The leaves are large for the genus, glaucous, somewhat rigid, long petioled and pinnate. The pinnæ are remote, four or five in number, and vary considerably in outline. The segments are sometimes obovate-cuneate, with coarse teeth, or ob-deltoid with a tri-lobed apex. The flowers are numerous, and borne in racemes, which are opposite the leaves. The bracts are large, lanceolate-acuminate, the upper becoming linear, all being longer than the pedicels. The pedicels are ½-inch long. The flowers are from ½-inch to 1 inch long, yellow in colour. The sepals are persistent, minute, broadly ovate acuminate. The spur is somewhat recurved, obtuse and short. Of the outer pair of petals, the upper one is the longer, and it is awned. The style is transverse and bi-lobed. The capsules are narrowly linear, with minute punctulate seed. The large, somewhat rigid leaves and conspicuous bracts easily distinguish the species from its allies.

Corydalis cheilanthifolia, Hemsley.* — This pretty species was discovered by me in Hupeh, occurring amidst stones on the banks of streams in the higher mountains. It is now in cultivation at the Coombe Wood nursery. It is a small plant, with delicate, fern-like leaves, and small yellow flowers. It is worth cultivating for its pretty foliage and graceful habit.

C. temulifolia, Franchet. — Occurring in forests in Szechvan; has large pink flowers, and leaves of great size. Seeds of it were not however found by Mr. Wilson.

C. ophiocarpa, Hook. fil. et Thomson.—Occurring in Sikkim and in Central China; was raised at Kew from seeds sent by me some years ago. It has tall, lax foliage, and is perhaps not worth cultivating as an ornamental plant. *Augustine Henry.*

Jour. de Botanique, viii., 1894, p. 291.

* *Journal of Lin. Soc.*, xxix., 1892, p. 392.

HERBACEOUS BORDER.

ASTER NOVI-BELGII VAR. ARIADNE.

THOSE of your readers who wish for one really good blue-flowered variety of Aster may make a note of the above. Just now at Kew, in the long border beside the T range there is a mass or two of it that cannot fail to impress anyone. The plant grows to the height of 6 feet, while the entire mass is 8 feet or 10 feet across. If I remember aright, this variety when first known several years ago was given as 3½ feet high. The height, however, varies with the locality and the soil. In lesser degree these affect the colour and the size of the flower. At Chiswick, on October 13, this variety obtained the Award of Merit.

But all Asters delight in rich soil and plenty of moisture; and so much so is this the case, that not a few, Novi-Belgii and Novi-Angliæ types in particular, may safely be treated as sub-aquatic. *E. J.*

ECONOMIC BOTANY IN MINCING LANE.

If it had been necessary to have object-lessons of the extent of Great Britain's colonial possessions over the face of the globe, and of her vast commercial relations with other countries, such lessons have not been wanting of late years; for if we take a survey of the imported articles of vegetable production alone, in which we are more immediately concerned, we find that they form a very large bulk of the total imports, and that Englishmen or English subjects are more or less connected with their growth, preparation, and export. Even from a mercenary point of view, the destruction of the crops in the far-off West Indian Islands has an influence in our home markets, an illustration of which may be referred to in the matter of one of the chief products of St. Vincent, namely arrowroot. We were told in the daily press that the plantations of this useful and important commodity had been to a great extent destroyed, and at the end of May the Mincing Lane market report stated that for the first time since the eruption in St. Vincent some first hand parcels of arrowroot were offered at auction, but without result, as the holders were firm in their prices; fair to good quality being bought in at 4½*d*. to 5½*d*. per lb., and fine quality at 6*d*. to 7*d*. per lb. It was stated at the time of sale that about one-half the crop of arrowroot in St. Vincent had been saved, and that some 2,000 packages had arrived in this country. Again, in the first week of June, a few hundred barrels of fair quality were sold at 4*d*. per lb., and a further arrival of 500 barrels were announced.

In further connection with this subject, it may be of some interest to draw attention to a few other important articles of regular commerce, the origin of which are of peculiar interest, of high commercial value, and exhibit a wide geographical range, but about the sources and production of which little is generally known. The products we refer to are all of a resinous nature, and are to be found in quantities in the docks and at the Mincing Lane sale-rooms, and are well known by their popular names of gamboge, dragon's-blood, and benzoin.

Gamboge.—The first is contained, in a fluid form, more or less abundantly in the stems, leaves, and fruits of several species of Garcinia, a genus well known as furnishing the celebrated Mangosteen (Garcinia Mangostana). The chief source, however, of commercial gamboge is Garcinia Hanburyi, and it is obtained from Siam and Cambodia. To collect the juice, a spiral incision through the bark is made around the trunk of the growing tree, from which it slowly exudes, and is received either into the hollow joints of bamboos, closed at one end, and measuring about 18 inches long and 1½ inch in diameter, or the juice is collected in Cocoa-nut shells. The bamboo cylinders of the size described take from fifteen to thirty days to fill, when they are held over a fire, which separates and evaporates the water which passes away with the juice in the process of collecting; the latter then hardens, when the bamboo casing is broken away, the result being roll or pipe gamboge of commerce. That which is collected in Cocoa-nut shells is known as cake or lump gamboge, and is of an inferior quality to the pipe. To ensure quality and supply, it is considered well to tap the trees only in alternate years. Good quality pipe gamboge is that which bears the impress on its surface of the inside of the bamboo in long parallel lines or channels. In India various modes are adopted for collecting the gamboge, but the bamboo joints are never used. In Ceylon the juice is usually collected by cutting thin slices off the bark on different parts of the trunk, which when dry is scraped off, and as it is brittle, it of course breaks up into small pieces.

In the Kew Museum is a portion of a trunk of a gamboge-tree which has been incised, and the incisions encrusted with gamboge.

Of the Indian species of Garcinia reported to yield gamboge in more or less quantity and in varying quality, the following may be mentioned:—G. Gambogia, G. cornea, G. heterandra, G. speciosa, G. travancorica, G. anomala, G. Cowa, G. Wighti, and G. xanthochymus. In some parts of India, gamboge is used as a pigment, as well as for a yellow dye for fabrics. In Europe it is used in water-colour drawing, in lacquering brass work, and slightly in medicine, but more perhaps now in veterinary than in any other practice. For some time past gamboge has been scarce in the London market, and consequently high prices have prevailed. Towards the end of last year good Siam pipe, with a good orange fracture, commanded as much as £13 per cwt., while pickings sold at £9 15*s*. At the last sale of the year, at the end of December, none was offered for sale, and the statistics of imports to this country from Singapore, showed that since 1897 they have been declining from 226 piculs in that year to only 15 in 1901. At the end of May, some new gum was sold at rather lower prices, rough Siam pipe of good orange fracture realising £12 per cwt., while Saigon pipe of very bright fracture which it was remarked as being unusual in this kind, sold at £10 17*s*. 6*d*.

Dragon's-blood.—In the matter of dragon's-blood, the substance is a resinoid formation naturally deposited on the outside of the imbricated scales of the fruits of the Palm Calamus or Dæmonorhops Draco, one of a group of climbing Palms with slender flexible stems, several species of which form the "canes" of commerce, used both for walking-sticks as well as for basket-making and chair-seating. The species yielding commercial dragon's-blood is a native of the Indian Archipelago and is described as growing in swampy forests in Palembang and Eastern Sumatra, as well as in Southern Borneo and Penang. The pretty imbricated fruits are borne in large clusters. They are more or less covered with a red resinous substance, which is sometimes so thick that the scales are not visible. To collect this resin, the fruits after being gathered, are put into bags or sacks and violently shaken; by this means it is removed in the form of a powder, and with the assistance of a little heat, is rolled into sticks or made up into cakes of varying sizes. The form in which it is shipped to Europe is that of a large circular cake, about 10 inches in diameter, and flattened on two sides; an inferior quality is said to be prepared by crushing the fruits and boiling them, the resinous substance solidifying upon cooling. Dragon's-blood is of a deep red colour, and is used chiefly for staining wood and colouring varnishes. If of good quality, it

FIG. 94. CORYDALIS THALICTRIFOLIA.
(As flowering on the Rockery, Royal Gardens, Kew, on August 6 last.)
(See p. 288.)

should have a bright resinous fracture and be readily soluble in alcohol; a dull red and earthy fracture indicates poor quality. In England, its medicinal use is almost limited to that of colouring plasters and tooth-powders, but on account of its astringency it is often used in India for diarrhœa and dysentery. Always fetching a high price, dragon's-blood has of late years been increasing in value, the prevailing price at the close of last year for good bright lump, from £11 to £11 7s. 6d. per cwt., increasing to £14 per cwt. in the early part of the present year. In 1897, only 99 piculs were imported into Great Britain from Singapore, increasing to 118 piculs in 1898, 227 in 1899, 224 in 1900, and only 101 in 1901. It may be well to say that the name dragon's-blood is applied to the old resinous secretions of some species of Dracæna, but these do not enter into English commerce. *John R. Jackson, Claremont, Lympstone, Devon.*

(To be continued.)

HOME CORRESPONDENCE.

BOTHIES.—A paragraph appears in your issue of September 20, p. 221, by "R. R.," in reference to bothies, every expression in which I entirely agree with as to the state of many of them; but I must take exception to the aspersion cast upon head gardeners that they are to some extent to blame for the state of things described. The writer of the note in question in all probability does not hold a head gardener's post, or he would hesitate before casting aspersions on head gardeners, and charging them with neglecting the comforts of the young men under them. As a head gardener and under gardener, I have had a wide experience of bothies, but I never knew of a case where the head gardener could not better the condition of things "by careful explanation to his employer;" and I know of many instances where the head gardener has added to the comforts of the young men by putting his hand in his own pocket. *Head Gardener.*

MITES ON BEGONIA-LEAVES.—Mr. Fielder's note on this subject is interesting; and now that this so-called rust is known to be caused by mites, it will not be a difficult matter to extirpate them. In the gardens here, the mites first appeared on tuberous-rooted Begonias; and then Cyclamens, Begonia Gloire de Lorraine, Cucumbers and the points of Melon-shoots, Bouvardias, Celosias, &c., became infested with them. It puzzled me at first as to what caused the rusty appearance of the leaves of the plants, and I discontinued growing Cyclamens for two seasons, in the hope of getting rid of the pest. Plants that were bought from the nurserymen were infested with the mite, and there appeared to be nothing gained by not growing our own plants. I decided therefore to try insecticides, and since then the mite does not give any trouble. Probably any good insecticide would kill the mites, and that which I made use of was diluted "Niquas," which is a very effective remedy. Dipping the plants is the most efficacious way of applying it. Plants which are at all subject to the mite must be dipped once a week, even when apparently quite free from mites. Cucumbers should have a spraying once a week, which must be thorough to be of any use. This means of prevention entails a little extra labour, but beyond this one need not be alarmed at the appearance of the mite among his plants. *T. H. Slade.*

APPLE, PRINCE BISMARCK.—This variety can scarcely be described as free cropping generally. This year it appears to be carrying satisfactory crops, as several of your correspondents have stated, and there are several trees at Poltimore Park, Exeter, which have borne a fair crop of fruits just gathered. These trees are about nine or ten years of age, and from their growth they are apparently worked on the wilding stock; hitherto the trees have not carried more than half-a-dozen fruits on each. The fruits are of a high colour, large size, and the flesh very firm. If it prove a prolific variety, it will be a useful addition to culinary Apples. *T. H. Slade, Poltimore.*

LABURNUM FLOWERING TWICE.—There is a variety growing here named by us L. autumnalis, so named because it always flowers more or less at this season. The reason it does so appears to me to be due to its very early flowering in the spring. The variety flowers profusely at that season, and as its season is over long before the ordinary Laburnum is in flower, and sets but little seed, consequently the flower-buds mature early, some of which always break forth into flower in the autumn. In extra warm years it is completely covered with racemes of flowers, which are never so long as those of spring. Moreover this tree does not grow so rapidly as the ordinary variety. This season it has not flowered so freely, owing to the comparatively sunless summer. *T. Arnold, gr., Cirencester House, Cirencester.*

ORCHIDS IN TREE-LEAVES.—Referring to the question of Orchids potted in the above materials, I would like to give the readers of the *Gardeners' Chronicle* my experience. In the first place, the term "leaf-soil" is I fear not quite applicable. I have used Oak-leaves for about two years, more particularly in potting Oncidiums and Odontoglossums, and I can truthfully state that in all cases it was with good results. The condition of the leaves is, in my opinion, the chief point. I use them soon after they have fallen, although if kept in a dry place they are equally good until the next fall. I rub the leaves through a coarse-meshed sieve, just to break them up, and then shake out the very small particles, which I use for ordinary plants, not Orchids; then I add a good sprinkling of fresh moss, a little fibrous peat, and a small portion of small pieces of charcoal, mixing all of these ingredients well together, do the repotting with moderate firmness, and dress the surface with fresh moss, leaving it a little below, or at the least not above the rim of the pot. I find that the roots permeate this mixture like those of ordinary plants. I may say, I only just cover the pot bottom with drainage, and can readily knock an Orchid, so potted, out of the pot, to see how the roots are working, without damage to the latter. The leaves that I make use of are those of the English Oak. With regard to the need of water, the Orchids potted in this material require water more often than those potted in the old mixture of peat and moss, and the leaves do not get sour nearly so soon. In my first attempt I used leaf-mould as I understood it, i.e., thoroughly decayed leaves, which forms practically a fine soil. I soon found that this was bad for the plants, the compost becoming soddened, and the plants in consequence failed to thrive. Since using the much more open mixture I am satisfied with results, and have found that exhausted plants, of Oncidiums especially, commence a new life, and grow and flower perfectly. I may also mention that under this system of potting there is much less accommodation for the various pests to which Orchids are liable. *A. Harrison, Beech Lodge, Park Avenue, Roundhay, Leeds.*

—— I am pleased that the subject of tree-leaves for potting Orchids has appeared in your columns. The subject comes at a very opportune time, as I have just taken over a collection which were potted in this kind of material. This is the second collection I have seen in my experience, and I quite agree with Mr. W. P. Bound when he says, "Before anyone makes use of leaf-mould in quantity cultivators should make experiments." The first collection which came under my notice consisted of about 1,500 plants. Unfortunately, it came into the hands of an inexperienced man, and they were repotted in leaf-mould. At that time the plants were in a healthy state, but they soon showed signs of decay, and the only thing that saved them was the arrival of another gardener, who repotted the whole collection in peat. The other collection belongs to my present employer, and a more sorry state of things it would scarcely be possible to find anywhere. There was only one alternative, either to repot the entire collection or lose it. Although the plants have been repotted only about six weeks, they are beginning to recover their health. Cypripediums and Dendrobiums had suffered the most, but in the whole collection there was scarcely a live root. The only drainage material which had been afforded consisted of but one crock put at the bottom of each pot, the only potting material leaf-mould, with a layer of moss over it. It may be said that the use of leaf-mould and nothing else is an extreme case; but I quite agree with Mr. Bound that the most critical matter in the case even of one-fifth leaf-mould is the administration of water, and I should advise holders of small collections to leave well alone, and be satisfied with good fibrous peat and sphagnum. *W. J. Chrisp, gr., Wychdon Lodge, Staffs.*

THE PRICE OF NEW NARCISSUS.—In the *Gardeners' Chronicle* of October 11, a correspondent, "Maggie May," speaks of the varying prices of new Narcissus, mentioning Will Scarlett, varying from £18 to £25. Will you allow me to explain that the stock is in the hands of only one or two of the trade, and most likely those who quote at the highest prices do not hold stock. The variety Lady Margaret Boscawen increases fast, and where the stock is largest the increase is also largest, and hence the lower price charged. The variety Torch is viewed from a different standpoint. The Rev. Engleheart at a meeting of the Daffodil Committee held at the Drill Hall, Westminster, this year, described Torch as a good border variety; presumably the perianth does not come up to his standard, and it may be so with the firm who quote it at 30s., the lowest price named by "Maggie May." I know it is the custom with some to catalogue varieties they do not hold, hence the incompatibility of prices. *John Pope.*

GARDENERS AND THEIR EMPLOYERS.—As the relations between gentlemen and their gardeners have from time to time come under discussion, I should like to give some experience and facts that have come under my notice. In the first place, I may say that the employer who knows the routine of a gardener's business is less exacting than one who knows nothing about it, and the former will usually make allowance for failures arising through climatic changes or other circumstances over which the gardener has no control. I once had charge of an establishment where if anything happened unfavourable to the crop put in, it was put down to the incompetence or ignorance of the gardener; whereas it was more due to a lack of sufficient and varied materials for producing the necessary indoor and outdoor crops than to any fault of the gardener. Improperly constructed houses and insufficient heating power are often a fruitful source of failures, and then the question is asked, why cannot we have the same produce in perfection as Mr. So-and-So? Why, indeed! when the latter gentleman has every up-to-date appliance to get them. I have had a fairly good innings of working under such adverse conditions, and I have no doubt some of the craft can bear out my statements in their own experience. In my case the mistress and the cook were the worst to deal with, the former requiring impossible things out of season, when there was no adequate provision for procuring them; the cook following suit in finding fault, the vegetables being too coarse, the Broccoli too strong in flavour, Potatos soapy or with no flavour, defects due in a great measure to uncongenial soil. During one exceptionally dry and scorching summer, all kinds of vegetables were scarce and dear, and Runner Beans were at a premium, the soil being on gravel, the flowers

dropped without setting; but no allowance was made for such untoward conditions, and the same supply, as in favourable seasons, was expected. The up-to-date gardener is supposed to have a scientific as well as a practical knowledge of his business and allied subjects, so far as to include a knowledge of the rudiments of botany; of the chemistry and proper constituents of soils in relation to the various crops grown, and a knowledge of the species of grubs and garden insect pests, as well as the best means to employ for their destruction. He is also expected to be well up in florist's work, so far as regards dinner-table and general house decoration. I have seen it stated by a leading authority that there are always good places to be found for good men; this I agree with, so far that if there are five good head vacancies there are fifteen to twenty good men ready to fill them. The plain fact of the matter is, that the supply is greatly in excess of the demand, and I fear if this over-production continues, the competition for places will grow with it, and bring wages down to the lowest limit. This forces on me a conclusion I have long come to—that gardeners should combine so as to protect their own interests; and to effect this, a central club or association should be established on a good basis, and to float this a monthly subscription, payable by all members, would be necessary. If a society of this description was well advertised, I believe in time the number of subscribers would so increase that it would be self-supporting, or at any rate, with a nominal payment by the members. The business that would come within the society's scope would be to afford help to members out of employment, and to provide a registration bureau both for employers and employees on payment of a small fee; also to endeavour to increase the rate of wages, and to further the interests generally of all the members. The different branches of the craft would have to be classified, and the amount of subscription levied according to the means and position of the members, which would include head gardeners with one or more men under him, single-handed gardeners, groom-and-gardener, and market-gardeners. Nurserymen and their employees might also be enrolled. An association formed on the above lines would be enabled to deal with contingencies arising out of similar cases to the one in point. In one place I followed a Trentham man, who was very good at a few special things chiefly under glass, but who failed utterly as an all-round man. I believe that if full particulars of his qualifications, in addition to those relating to character, had been furnished to the employer, the latter would never have had him. The same man, after having six months' charge of the garden, nearly ruined a valuable collection of Orchids, besides other plants. An association would bring employers and employees in touch with each other, and a community of interest would be established that would be to the advantage of both; besides, under such circumstances, the employer would be more likely to meet with the right man, and *vice versâ*. *J. D. G.*

EXPERIMENTAL MANURING.—Had it not been for the introduction of those various mineral substances known as artificial or chemical manures, we should probably have heard very little of experimental manure trials. Still very much of interest attaches to such trials necessarily, especially when conducted at such a centre as Rothamsted, where, however, they seem to be more applicable to agriculture than to gardening. But when listening to Mr. Shrivell's lecture on "Manure Trials," as conducted by him and Dr. Bernard Dyer on behalf of a manure agency, I could but think how much better would it be were such experiments under the control of a totally independent body, such as is the Council of the Royal Horticultural Society, rather than by and in the interest of any manure manufacturers or agents. The morning succeeding the delivery of the lecture I received per post, no doubt in common with many others, a voluminous report furnished by Dr. Dyer, but

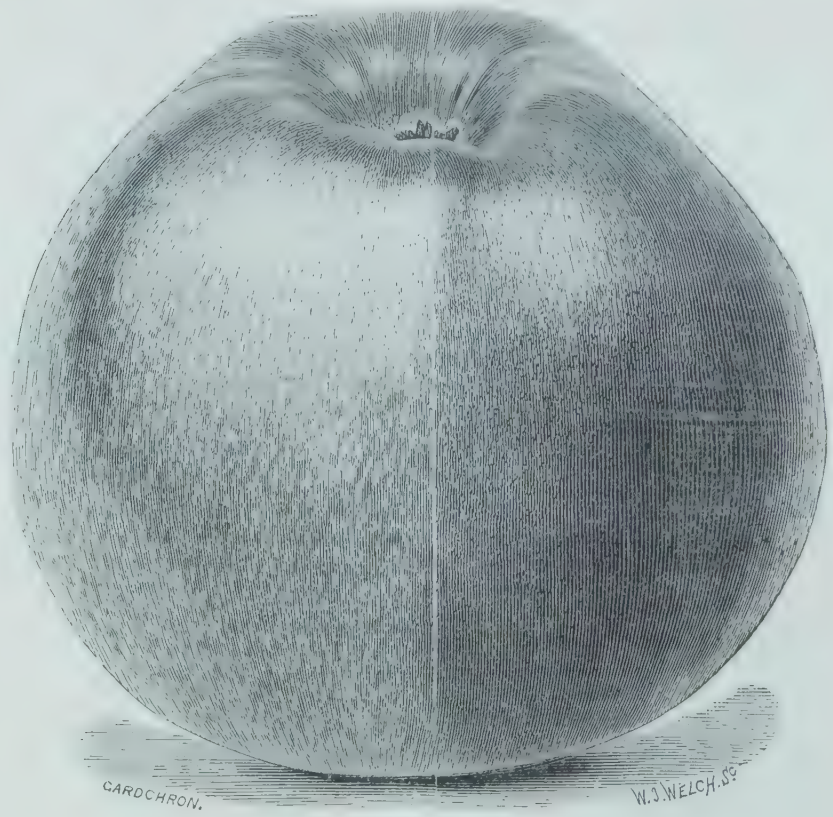


FIG. 95.—THE BISMARCK APPLE.
(See p 290; also last and preceding issues.)

by whom furnished or at whose cost nothing whatever is significantly said; and here I may remark that in face of the wide circulation of this report, it seems hardly needful that the Royal Horticultural Society should in the form of a lecture publish any extracts from it, especially as these details have been talked about before almost every gardener's association in the kingdom. Naturally when it is understood that a certain pecuniary interest underlies these trials, it can be no matter for surprise if the results so freely dilated upon are taken with a large grain of salt. Such doubt and distrust is but natural and inevitable. Is it not possible in the interests of horticulture, and not of any trade organisation, to have complete and persistent manure, fungicide, and insecticide experiments, conducted in such a way as shall secure the fullest confidence? Gardening seems to have become as much the prey of enterprising traders in all sorts of marvellous remedies and stimulants, as the unhappy mass of the ignorant community has become the *corpus vile* of quack medicine advertisers. By all means let us cherish all that is good, useful, helpful, but we want all the same an independent body to experiment with and select the good from the useless. *A. Dean.* [What is Chiswick doing in this matter? ED.]

THE TREATMENT OF SCALE BY FUMIGATION.—I have had for some thirty years past, a varied experience in the treatment of scale, and have not, until very recently, discovered a really effectual destroyer. I have found it most difficult, especially at busy times, to keep the trees in a large Camellia-house clean. Last autumn I decided to give the so-called "Necros" Vaporising Powders a trial, and for this purpose selected various plants affected with different kinds of scale. After fumigating the plants, I left them till the morning untouched, when I carefully examined them and found they were quite uninjured. I then gave them a thorough syringing with clean water. In about a month I repeated the treatment, this time with the strength of the liquid increased by one-half. After letting another four weeks elapse I decided to give

FIG. 96.—STRAWBERRY ST. ANTOINE DE PADOUE. (SEE P. 292.)

a third application, this being more as a precaution, as my difficulty has always been in entirely destroying scale. This experiment has proved quite a success, the plants being now perfectly free from scale and in a healthy condition. I have had equally good results on a larger scale in the Camellia-house mentioned above, where I am pleased to say there is now not a trace of scale left. Since these experiments I have repotted some Orchids which were in the same house when I made my first trials, and I was agreeably surprised to find them almost free from woodlice. I can only attribute this to the results of the fumigation, as the pots had previously been infested with them. *W. Kipps, Head Gardener, Walton Lea, near Warrington.*

CULTURAL MEMORANDA.

LILIUM AURATUM IN RHODODENDRON-BEDS.

An excellent example of the vigour and beauty to which Lilium auratum may be caused to attain where permanently planted properly made Rhododendron-beds is given in in the gardens of Frank E. Marshall, Esq., M.A., Newlands, Harrow Park, Harrow-on-the-Hill, where there is still a very fine show of flowers, borne on stems produced by bulbs planted in the Rhododendron-beds in good peat-earth some years ago, and not since disturbed, and which have rapidly increased in stature until now, the stems are from 6 to 7 feet in height. Several of the bulbs produce fasciated stems, which, notwithstanding the great number of flowers borne on them have the individual blooms almost as large as those on normal growths. The number of flowers on each of these fasciated stems range from 60 to 111, the latter number being borne on one stem like an immense bouquet. *J. O'B.*

St. Antoine de Padoue Strawberry (see p. 291).

I wish to draw attention of readers of the *Gard. Chron.* to this prolific Strawberry (fig. 96, p. 291), which has this autumn given such valuable help to the dessert at this place. Finding that at the end of the month of October, 1901, our plants of this variety were carrying a heavy crop of fruit, and there was apparently no probability of ripening it, my employer suggested taking runners and layering them in pots for fruiting the next year. This was done, and the pots, 3-inch, were plunged in coal ashes in a cold house, and repotted into 48's early in May. All the blossoms were picked off till July 1, and about the middle of the next month the plants began to throw up strong trusses of bloom. The plants were left out-of-doors till the fruits began to develop, and then placed on a vinery-shelf. I have been constantly gathering nice firm, good sized fruits, and many of the plants are carrying a second crop. If some of our market-growers would follow my method with this variety I am sure they would find it a very remunerative venture. *F. Potter, gr., Broxmead, Cuckfield.*

Raby Castle Carnation.

This is a robust-growing and free-flowering Carnation. The blooms are large and well-formed and fragrant; the colour a clear, soft, salmon-pink; the edges of the petals neatly serrated, characteristics which render it a great favourite with [some] florists. In addition to the plant being of robust growth and producing flowers freely, it is very hardy, flowering in the open field, as it has done here from the third week in July up to the end of September; indeed, fair gatherings of fine blooms were made up to the time of writing (Oct. 7). October and November form a good time to make plantations of early-layered Carnations. Plant them at 1 foot apart on dug or ploughed land which has received a moderate dressing of rotten stable-dung. Sprinkle a small quantity of soot in each hole before setting a plant therein, as a deterrent to wireworm, weevil grubs, &c. Sink the plants down to the lower leaves, and apply water after making the soil moderately firm about the roots. As a market variety, Raby Castle has no superior, and but few equals. *H. W. W.*

Propagating Marguerites.

Cuttings of yellow and white-flowered Marguerites should be taken off about 3 ins. long, and inserted about 6 inches distant from the glass in a bed of soil surfaced with sand, and covered with a cold frame. The cuttings should stand at 3 ins. apart, and be afforded water. Keep the cold frame or pit close till the cuttings have formed roots, when the lights may be drawn off in favourable weather, with the object of preventing much top-growth being made before the spring. During severe weather a slight covering of bracken or straw should be put on the lights. Cuttings of bedding-out Calceolarias may be rooted in quantities in the manner indicated above. *H. W. W.*

OAK-LEAVES FOR ORCHIDS.

As promised in our note on the cultivation of Orchids at Messrs. Charlesworth & Co.'s, Heaton, Bradford, p. 262, we give herewith the methods imparted to us with some remarks on the samples of leaf-mould shown to us.

First, it may be said that for years the use of what is called "terre de bruyère," and some modifications of it, have been experimented on at Bradford, with but little satisfaction, until the method now in use, the result of years of experience was adopted. The most misleading element in the earlier days was to be traced to the names of the materials used, "terre de bruyère," leaf-soil, and leaf-mould. Experience proved that before complete success could be attained, all "soil" or "mould," as the gardener understands the term, had to be got rid of, and decayed leaves procured, having no more soil among them than is usually found in the Orchid-peat in general.

Oak leaves, sufficiently decayed to be rubbed through a coarse sieve, and in moist (but not wet) flakes of from one-third to half-an-inch across, were found to be the best, and these only are now used. Before being rubbed through a coarse-meshed sieve all sticks and rubbish are removed, and after passing through this sieve the material is sifted through a fine-meshed one, so that anything of the nature of earth or dirt which passes through the fine sieve is kept out of the material used as an ingredient in Orchid-compost. So far from being leaf-soil, or leaf-mould, is this material, that it can be handled almost without soiling the hands.

Oak-leaves so prepared are used in the material in which practically every plant on the place is potted, including Odontoglossums, Cattleyas, Lælias, and Lælio-Cattleyas, the proportion in the compost consisting of about one-half of Oak-leaves. Carefully selected brown, fibrous, Orchid-peat, broken up by hand, and the earthy particles sifted out from the bulk of the fibrous portion, and mixed in varying proportions with living sphagnum-moss, of the short-growing, small kind, and not the large fleecy variety found in some districts, does not give such good results. These ingredients are prepared and kept separate until they are wanted for use, when a sufficient quantity for the required purpose is carefully mixed so that a handful of the soft springy material taken from any part of the heap is of the same quality as the bulk.

As before stated, generally speaking Oak leaves form one-half of the compost, and the other half consists of peat and sphagnum, and is what is used in potting Selenipediums, strong-growing Cypripediums, Phaius, Sobralias, Calanthes, and other Orchids of a similar nature, with a small proportion of fibrous yellow loam added. For Aërides, Vandas, Angræcums, &c., a larger proportion of sphagnum is introduced. For Miltonia vexillaria, M. Roezlii, Oncidium Marshallianum, O. Forbesii, and most of the Brazilian Oncidiums; O. macranthum, Odontoglossum Edwardi, Oncidium splendidum, O. tigrinum; considerably more than half the potting material consists of leaves.

Surfacing with Sphagnum.—In all cases, no matter what the proportions of the other materials may be, a surface layer of from 1 to 2 inches in thickness (according to the size of the pots), of good, short, living sphagnum-moss is provided.

Potting.—The mode of potting the plants is uniform throughout. A crock is placed the concave side downwards over the hole at the bottom of the pot, and on it an inch or so deep, a layer of broken crocks and charcoal is placed in the same manner as is adopted for ordinary stove or greenhouse plants. Then follows a layer of sphagnum-moss, and after that the plant is placed in position, being held up with one hand, while with the other the leaves, peat, and other material from the prepared heap is filled in and lightly pressed between the roots. This filling extends to within half-an-inch or an inch of the rim of the pot, and the surfacing of sphagnum-moss rises a similiar distance above the rim.

Plants in this material, it is said, can be afforded water in the same way as in peat and sphagnum, for the drainage from it is perfect, but where the continental material and method are adopted in this country, great care and attention have to be paid to prevent the materials getting too wet, and it is in that point the trouble with such material exists. Plants here and there throughout all the houses were turned out for our inspection, not without difficulty in many cases, on account of the compost being filled with roots; and although specimens of all the genera were tested, the result was in every case satisfactory. The pseudo-bulbs, leaves, and flowers of all the plants, in their sturdy character and stout, firm substance, showed that the methods adopted were of the proper kind.

But it must not be supposed that simply by using the material in the manner here set forth, that Orchids out of health will be restored as if by magic; that supposition has probably led many to state that they have tried and failed with the various leaf-mixtures. Where Orchids are in bad health, the least important thing to consider is the material in which they are potted. Find out whether the heating or ventilation, or the regulation of either, and the application of water, are not at fault. If such is found to be the case, and the defect is not remedied, it does not matter what potting-material is used, the plants will benefit but little. Mr. Charlesworth seems to have hit upon the right formula, and as the management of his houses and the other treatment accord, the result is satisfactory in a high degree. Oak-leaves are found to be the best, but those

of other trees may be used if carefully prepared.

Among cultivators of Orchids the sprayer gains steadily in favour for distributing moisture. For young seedlings in pans and small Orchids it is a foster-mother, and for plants in all stages its judicious and frequent use is highly beneficial.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

October 7.—*Present:* Dr. Russell, F.R.S. (in the Chair); Messrs. Worsdell, Saunders, Worsley, Odell, Hooper, Drs. Cooke and Rendle, Professor Boulger, Revs. W. Wilks and G. Henslow (Hon. Sec.).

Crotalaria species.—Mr. Wilks exhibited a flowering branch of a species raised from seed received from Uganda. It closely resembled C. Cunninghami, from the neighbourhood of the Gulf of Carpentaria in Australia. Dr. Rendle undertook to examine it for identification.

Effects of hail in Kent.—Mr. Wilks also showed stems of trees of which the bark had been ripped open in considerable lengths by the hail of the late storm. The wood was exposed as the bark curled backwards; it was received from Mr. Woodward, of Teston, Kent. It was recorded that six tons of hail were found in the basement of a house after the storm.

Fir and Cryptococcus.—Mr. F. Lloyd, High Sheriff of Buckinghamshire, sent a bough infested by this insect. The tree had died after four years' attack. Mr. Saunders undertook to examine and report upon it.

Mushrooms and Mites.—Mr. Gaut, of Leeds, sent some specimens badly attacked by mites, which, with their eggs, were quite observable. They are said to be wholly destroying the crop. Mr. Saunders examined them, and reports as follows:—"The Mushrooms are badly attacked by one of the 'bulb-mites,' Rhizoglyphus echinopus. I do not see what can be done to destroy them but to clear out the whole of the Mushrooms and the top soil of the bed, and begin afresh. Any method of killing the mites would certainly destroy the Mushrooms; soaking the upper part of the bed with boiling water would kill the mites, but it would equally kill the Mushrooms, and most probably the spawn. Before making a new bed, I should wash down the walls or woodwork that had in any way come in contact with the bed with paraffin emulsion or paraffin mixed with water, one part of oil to twenty of water, or with boiling water."

Vine Leaves Burnt.—Leaves of Madresfield Court Vine were received from Mrs. J. B. Wood, Henley Hall, Ludlow. No fungus could be detected. It was suggested that the appearance was probably due to the effects of the sun shining through the glass on the leaves when wet.

Begonia Leaves Diseased.—Leaves were received from Mr. C. Newington, of Oakover, Ticehurst, Sussex. An examination by Mr. Saunders revealed no insect pest; but Dr. Cooke remarked that the peculiarity of the disease occurring along the ribs and veins was very suggestive of Glæosporium, so that it might be an incipient stage of that fungus; such being the feature of this disease of leaves of the Plane-tree.

Chlorosis in Palms.—Mr. Odell exhibited seedlings of Kentia, showing the yellow, unhealthy leaves, taken from a batch of some thousands of seedlings, of which only a very small proportion were affected. A plant of Kentia submitted to the committee in February last (with five others) was in the same state as seedlings shown, but when grown in a cool-house with little shade, and potted in soil containing a trace of iron, the leaves developed the ordinary colour. Mr. Odell added that Kentias and Seaforthias (Archontophœnix) seem more subject to chlorosis than such genera as Cocos and Rhapis. (See *Gardeners' Chronicle*, Sept. 27, 1902, p. 232).

Germination in Amaryllids.—Mr. Worsley read a paper on this subject, which will appear in full in the *Journal* of the Society with illustrations. The author observes: "That it is possible for two embryos to exist in one seed of Hymenocallis concinna (Baker, sp. nov.). I believe it to be unique in the history of these plants. The minute threads [funicles], by means of which the ovules adhere to the base of the style (placenta), and constitute the only direct communication with the stigma, would seem to be so arranged that the whole of the ovules would become impregnated contemporaneously, and probably instantaneously, on the adhesion of a sufficient number of virile pollen grains to the stigma." Of these Amaryllids, with bulbiform seeds, he observes: "Such plants have a fixed number of ovules (six), and a fixed number of seeds (subject to very small fluctuation), yet there is often a great dissimilarity between the number of seeds and of ovules." In the above plant the number is four. "I believe that we must seek in the structure of the tissues below the ovary the cause of such limitations. It would seem as though the carriage of nutriment to the embryo from the bulb of the parent was either limited by the nature of such tissues to a certain number of channels, or that all the nutriment became, after impregnation, quickly diverted to the strongest embryos, and that the rest suffered from strangulation or starvation." He then refers to the great variety of sizes, the unequal vigour and vitality in the seeds. After alluding to the difficulty, if not impossibility, of "diverse impregnation," in support of his theory of simultaneous impregnation of all the ovules, Mr. Worsley proceeds: "From this it would appear as though a single pollen-grain were capable of impregnating over 100 ovules such as exist in the ovary of Hippeastrum; yet I do not think we are justified in asserting this to be an ascertained fact."

He then alludes to the well-known fact of different degrees of impregnation of the ovules when hybridising plants is performed, and adds: "These experiments tend to suggest that, beyond the one act of excitation, or instantaneous impregnation, there remains some further function for the male germs to perform, which is improperly or only partially done by foreign pollen grains." In the case of Hymenocallis concinna: "The original process issuing from the seed is duplicated, and each process is terminated by a bulb in process of formation." This he refers to two embryos having been formed within the embryo sac, and suggests that one pollen grain may contain more than one fertilising sperm-cell, and so impregnate many ovules. The author then refers to the curvature of the "process" as it issues from the embryo, of which he says its principal function is not that of a root.

Abnormal Onion.—Mr. Healey, of Hampton, Middlesex, sent a very curious formation. The Onion was well formed below, and bore a green stem of some 6 inches in length, but terminated with another Onion, also well formed. It was thought that it replaced the flowering bud, this having been broken off, but an examination by section showed that such was not the case; so that it arose from the replacement of the flower-bud by a true bulb. Mr. Healey adds:—"The sheath around the Onion below, over the second bulb, and right to the top, was continuous; and when pulled up the sheath was not even broken."

Physianthus Catching Moths.—Mr. Henslow showed flowers of this American Asclepiad, often cultivated at Cape Town, nearly every flower of which had caught a small grey moth by its proboscis, being nipped between the anthers. They either died of starvation, or, as was frequently the case, were carried off by bats.

Floral Committee.

October 13.—The Floral Committee met at the Society's Gardens on the above date for the last time this year, for the purpose of inspecting late flowering Michaelmas Daisies.

Present: W. Marshall, Esq. (in the chair); and Messrs. J. F. McLeod, C. Jeffries, C. Dixon, R. Dean, W. J. James, E. H. Jenkins, W. P. Thomson, and J. W. Barr.

Awards of Merit were recommended to:—

Aster Novi-Belgii Elsie Perry.—This is a strong-growing variety, 4 feet or so high, of branching habit with a wealth of bright pink, rather small, semi double flowers, borne on purple stems. A continuous bloomer. From Mr. Amos Perry, Winchmore Hill.

Aster Novi-Belgii Calliope, is vigorous and of bushy spreading habit; very free-flowering; flowers nearly 2 inches in diameter, pale mauve. From the Royal Horticultural Society.

Aster Novi-Belgii Ariadne, requires plenty of room to display its flowers because it is vigorous in growth, and unless well supported is apt to present an untidy appearance. Its bluish-purple flowers are borne profusely upon stiff stems, and remain in good condition for several weeks. From the Royal Horticultural Society.

Aster Novi-Belgii, Coombe Fishacre Brightness.—This is one of the most distinct of the late flowering Novi-Belgii group, and likely to prove a useful border plant. It grows 4 feet 6 inches high, is of bushy, spreading habit, and unusually free-flowering, its short-petalled rose-coloured flowers appearing not only upon growths near the top of the plant, but upon lateral shoots thrown up from near the base. From Mr. E. Beckett, Aldenham House Gardens, Elstree.

Aster vimineus, Delight, is well named, as it is exceedingly beautiful, of graceful habit, and remarkably floriferous. It grows 3 feet high, is of more upright, slender habit than the type, and its small pure white flowers appear on long, wiry shoots all over the plant. From Mr. E. Beckett, Elstree.

Aster Cordelia.—In all probability this is a cross between lævis and cordifolius, as there seems to be a pronounced relationship to these two well-known species. The variety is strong in growth, of cone-like habit, and very floriferous, the small, star-shaped blue flowers reminding one of the first-named parent. From Miss Willmott, V.M.H., Warley, Essex.

Aster cordifolius elegans, with its profusion of small, delicate mauve or lilac flowers, is wonderfully effective. It grows from 4 feet to 5 feet high, is of pyramidal, bushy habit, compact and free in growth. A feature of this variety is that it continues to send up flowering shoots from the lower portions of the plant long after those on the summit have withered. From Messrs. Dobbie & Co., Rothesay.

Aster acris nanus.—The type of this delightful variety is indigenous to Southern Europe, and a grand autumn-flowering plant. The variety forms a dense conical specimen, and for at least six weeks its blue, star-shaped flowers are displayed so profusely as to completely hide the small, linear, rich green leaves. As it never exceeds 15 inches high, it is well adapted for the rock garden, and few plants create a more telling effect when used as an edging to beds and borders. From the Royal Horticultural Society.

Highly Commended (xxx).

Aster Novi-Belgii, Jessie Crum.—Grows about 5 feet high, is of rather slender habit, and remarkable for its abundance of dainty pale lavender flowers. From Miss Willmott.

Aster Novi-Belgii, semi-plena.—This was received under the name of flore-pleno, but the committee were of opinion that the former name would be more appropriate as the flowers are not perfectly double. It is a very showy variety, of excellent habit, with a dense, spreading head, and large lavender-blue flowers, borne freely upon stiff, wiry stems. It is likely to be in great demand for cut flower purposes, as they are more enduring than those of many of its congeners. From Miss Willmott.

Aster Novi-Belgii, Edna Mercia.—Although in blossom at the present time, this really belongs to the early or mid-season blossoming sorts. It is of good growth, and like Elsie Perry, conspicuous for its stout, dark purple stems. The large, substantial, deep rose-coloured flowers are very handsome, and quite distinct from any other Michaelmas Daisy yet raised. It is a free and continuous bloomer, and grows 3 feet high. From Mr. Amos Perry.

Aster vimineus, Freedom, bears some resemblance to V. Delight, but the plant is of closer habit, and the small petals are not of quite so pure a white, while the yellow disc is more conspicuous. It comes near to A. vimineus. From Mr. E. Beckett.

Aster cordifolius, Ideal.—This is a deep-coloured form of cordifolius Diana (syn. C. Photograph), and is of erect, branching habit, and very floriferous, its long, graceful panicles of small lavender flowers being very attractive. From Mr. E. Beckett.

Aster cordifolius, Sweetheart, is a choice seedling 4 feet high, of stout growth, with dense, much-branched heads, and great quantities of small lavender flowers, similar to but deeper than those of cordifolius Diana. From Mr. Amos Perry.

Aster Novæ Angliæ, W. P. Bowman, is one of the showiest and most useful of the Novæ Angliæ section. It is vigorous, 5 feet 6 inches high, rather sparsely branched, and bears large purple flowers.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

October 2.—S. Gratrix, Esq., Whalley Range (gr., Mr. Cypher), exhibited a very handsome hybrid, Cattleya × Iris, the parents being C. aurea × C. bicolor. The shape of the flower is not unlike that of C. Schofieldiana, the sepals and petals are bright yellow colour, while the lip retains the character of C. bicolor, but is double the size of an ordinary form (First-class Certificate).

T. Statter, Esq., Stand Hall (gr., Mr. Johnson), exhibited a hybrid Cypripedium between C. × Numa

C. Lawrenceanum, rather dark in colour, but the flower was young. A nice group of Orchids was staged from this collection (Bronze Medal for Group).

O. O. WRIGLEY, Esq., Bury (gr., Mr. Rogers), also staged a handsome lot of Dendrobiums; also some hybrid Cypripediums, and a number of well-flowered plants of Cattleya Loddigesii (Silver Medal).

CHAS. PARKER, Esq., Ashton-on-Ribble, exhibited Cypripedium × purum, the parents being C. callosum × C. superbiens (Award of Merit).

H. SHAW, Esq., West Kirby (gr., Mr. Cliffe), obtained an Award of Merit for Dendrobium calceolus.

Messrs. CHARLESWORTH & Co., Bradford, had a nice selection of plants, Lælio-Cattleya × Violetta (L. purpurata × C. Gaskelliana), received an Award of Merit; L.-C. × Gottoiana, first introduced as a natural hybrid many years ago, now appeared as a garden hybrid, and received an Award of Merit; Cypripedium × Princess, in the way of C. × Edwardi, received an Award of Merit; and Lælia purpurata × L. Digbyana, First-class Certificate.

Mr. A. J. KEELING, Bingley, received an Award of Merit for Cypripedium × Graceæ (C. niveum × C. Boxallii).

THE STONE ORCHID Co. (gr., Mr. F. Stevens), received an Award of Merit for a good variety of Odontoglossum crispum. *P. W.*

BRISTOL & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

OCTOBER 2.—The opening meeting of this Association was held at St. John's Rooms, Redland, on the above date, under the chairmanship of Mr. E. BINFIELD, gr., Old Sneyd Park.

On this occasion, Mr. BROOKS, of Messrs. Garaway's Nursery, Clifton, gave a lecture on the Royal Horticultural Society's great fruit show at the Crystal Palace. He dealt with the exhibits of former years, and compared them with those of the present season, showing the effects such a summer as this year experienced must have had on the fruit supply of the British Isles. He observed that owners of gardens would find it to their advantage to allow their gardeners to inspect the exhibits at this, the finest fruit show in the country, for the sake of the information such visits would afford them. As indicating the effects of the weather on the fruit crops, he remarked that whereas 4000 dishes of fruit were shown in former years, only 1000 were shown this year. Mr. Brooks gave some very useful information in regard to the packing of fruit for market, &c. A useful discussion followed the reading of the lecture, and a cordial vote of thanks was awarded Mr. Brooks.

Black and White Grapes and ornamental Gourds were shown on this occasion, and prizes awarded.

THE LAND AGENTS'.

THE second annual meeting of the above society was held at the Hôtel Métropole on the 7th inst. Mr. E. G. WHEELER presided, and there was a good attendance of members present from all parts of the country. The Annual Report showed that 356 members and 64 associates had joined since the formation of the society a year ago. Two provincial branches had been established, one for the counties of Northumberland, Durham, and Yorkshire, and the other for Hampshire, Berkshire, and Buckinghamshire. A journal for the use of members had also been started with success. Steps were being taken to obtain reports of legal decisions of importance relating to land; and it is also proposed to obtain regular information concerning all Bills in Parliament likely to affect the landed interest. The rules of the society were discussed and amended. An agreement was entered into with the Country Gentlemen's Association for the use of its offices at 16, Cockspur Street, Pall Mall, and Mr. William Broomhall was re-appointed Secretary. Colonel Halifax Wyatt was elected President for the ensuing year, and the Council was re-elected, the name of Mr. J. J. Hornby, of Knowsley, Prescot, being added. Other matters being dealt with, the meeting closed with a vote of thanks to the Chairman.

DEVON AND EXETER GARDENERS' ASSOCIATION.

OCTOBER 9.—The annual meeting was held in the Guildhall, Exeter, under the presidency of the Mayor (Mr. A. E. Dunn). The annual report showed the Association to be in a flourishing condition. The committee have resolved to continue the scheme of giving a nominal first, second, and third prize at each meeting during the session for some specific subject, such as Parsnips, Carrots, Potatos, Chrysanthemums, or other specimen vegetables, plants, or flowers, to be competed for by the members only, the award to be made in each case by ballot of the members present. This is to be done with a view to giving an object-lesson to the younger members in regard to what they should do and avoid in cultivating and preparing objects for exhibition. Mr. E. A. Sanders was re-elected President of the Association, Mr. Hope and Mr. Mackay, hon. secretary and hon. treasurer. Nine local gentlemen were elected as vice-presidents, and a working committee of twelve members appointed for the ensuing year. This is the twelfth year of the Society's existence.

A FRUIT SHOW AT THE CORK EXHIBITION.

OCTOBER 15.—A very fine exhibition, under the auspices of the Department of Horticulture and Agriculture of Ireland, was opened on the above date, when the Concert Hall was filled to overflowing with as fine specimens of fruit as could be found in any part of the United Kingdom. The celebrated firms Saunders, of Friars Walk, Cork; Hartland, of Ardcairn, Cork; Dicksons, of Belfast; and other firms were well to the front.

On some of the tables there were perfect examples of Peasgood's Nonsuch, Warner's King, Bramley's Seedling, Ecklinville Seedling, Queen Caroline, Cox's Pomona, and others. Of brilliantly-coloured fruit were noted Worcester Pearmain, The Queen, Prince Bismarck, Lennox Pippin, very fine, particularly on Mr. Wm. Baylor Hartland's table; Mère de Ménage, Gascoigne's Scarlet, The Nanne, Munster Seedling, a very bright local fruit, &c. The Pears, too, were very fine, and the new Department of Agriculture of Ireland staged an enormous collection of Potatos.

We may be able to report this show more fully in our next issue.

LAW NOTES.

ROBBING A SPITALFIELDS-MARKET SALESMAN.

WEST HAM QUARTER SESSIONS.—A market salesman was indicted for falsifying a banker's paying-in book with intent to defraud; and he was also indicted for embezzling three sums amounting in all to £60. Mr. Murphy prosecuted; Mr. Warburton appeared for the prisoner, who pleaded guilty. Prosecutor is a vegetable salesman of Spitalfields and Stratford Markets, and the prisoner had charge of the Stratford Market warehouse, and he had the custody of the books and control of the banking account at the Stratford branch of the London and County Bank. The books he kept showed a balance at the bank of about £450, but on September 19 prosecutor received a letter from the bank notifying that his account was overdrawn to the extent of £18 odd. Bradley put himself in telephonic communication with the prisoner, who said the balance was, roughly, £400. Prosecutor went to the bank, and when he got to his warehouse at Stratford Market he found that the prisoner had absconded, and left behind a note as follows:—"Dear Sir,—A wasted life.—JOY." The case has already been reported. Mr. Murphy mentioned that the total of the prisoner's defalcations amounted to about £650. The Recorder said that prisoner appeared to have been systematically robbing his employer, and sent him to prison for twelve months in the second division.

CATALOGUES RECEIVED.

MISCELLANEOUS.

WILL TAYLER, Osborn Nursery, Hampton, Middlesex—Select Fruits and Roses.

ROSES, FRUIT TREES, SHRUBS, ETC.

PAUL & SON, The Old Nurseries, Cheshunt, Herts.
E. P. DIXON & SONS, Hull, Yorks.
FRANK CANT, Braiswick Rose Gardens, Colchester.
CHAS. TURNER, Royal Nurseries, Slough.
J. CHEAL & SONS, Lowfield Nurseries, Crawley.
D. PRIOR & SON, Colchester.

FOREIGN.

FREDK. W. KELSEY, 150, Broadway, New York—Trees and Shrubs, Roses, Herbaceous Plants.
V LEMOINE ET FILS, Rue du Montet, Nancy, France—Hardy and Tender Plants.
PETER LAMBERT, Trier (Treves)—Roses, &c.
CHAS. LORENZ, Erfurt, Germany—Novelties in Flowering Plants and Vegetables.
F. C. HEINEMANN, Erfurt—Novelties in Flowering Plants and Vegetables.
CH. MOLIN, 8, Place Bellecour, Lyon, France—Novelties in Flowering Plants and Vegetables.

FRUIT TREES, ROSES, AND SHRUBS.

THOS. RIVERS & SON, Sawbridgeworth, Herts.

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period Oct. 5 to Oct. 11, 1902. Height above sea-level 24 feet.

1902. October 5 to October 11.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Highest. Day.	Lowest. Night.	Rainfall.	Temperature of the Soil at 9 A.M. At 1 foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 5	E.N.E.	47 9	45 4	57 5	45 7	...	51 0	53 8	55 5	43 0
MON. 6	E.S.E.	48 1	47 6	52 1	46 5	...	51 2	53 6	55 2	43 0
TUES. 7	W.N.W.	51 7	49 8	56 5	44 0	...	51 5	53 4	55 1	42 5
WED. 8	S.E.	44 4	43 5	57 1	39 5	...	52 0	53 5	55 0	28 3
THU. 9	E.S.E.	54 9	51 4	61 2	42 8	0 36	51 3	53 2	54 8	34 0
FRI. 10	S.W.	60 0	56 8	65 2	51 8	0 15	52 3	53 2	54 6	47 0
SAT. 11	S.E.	55 9	55 2	61 2	53 2	0 02	53 8	53 7	54 5	40 0
MEANS	...	51 8	50 0	58 7	46 2	Tot 0 53	51 9	53 5	55 0	39 7

Remarks.—The first part of the week was dull and dry the latter part brighter but more unsettled, with rain on three days.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending Oct. 11, is furnished from the Meteorological Office:—

"The *weather* during this week, although mostly cloudy or dull, was generally fair and dry in the most northern and western districts, but over the major part of England it was far less settled, and rain fell frequently, and sometimes heavily. Thunder and lightning occurred at a few English stations on Sunday, in the south of Ireland on Tuesday, and in Cornwall on the night of Thursday-Friday.

"The *temperature* was again a little below the mean in most districts, but just equalled that value in England, S., and was slightly above it in England, E. The highest of the maxima, registered as a rule towards the end of the week, ranged from 67° in England, S., 66° in England, E., and 65° in the Channel Islands, to 59° in Ireland, N. and England, N.E., and to 58° in England, N.W. The absolute minima occurred generally towards the end of the period, and varied from 22° in Scotland, E. (at Braemar), 25° in England, N.W., 26° in Scotland, N., 28° in Ireland, N. and 30° in England, N.E., and Scotland, W., to 35° over Central, Eastern, and Southern England, and to 43° in the Channel Islands.

"The *rainfall* was less than the mean, except over the northern half of England and in the Channel Islands. In England, E. and S.W., it just equalled the normal.

"The *bright sunshine* was very little prevalent, varying from 29 per cent. of the possible amount in Scotland, N. (where it slightly exceeded the mean), and 26 per cent. in England, S., and the Channel Islands, to 20 per cent. in Ireland, N., 7 per cent. in England, N.E., 6 per cent. in England, N.W., and 5 per cent. in the Midland counties."

THE WEATHER IN WEST HERTS.

THE weather remained unseasonably cold until the 10th, when a change to much warmer conditions took place. On three of the last five days the highest temperature in shade has exceeded 60°, while several of the nights were also very warm for the second week in October, and on no night did the exposed thermometer indicate a reading below the freezing point. The ground temperatures have risen rather rapidly since the beginning of the week, the reading at 2 feet deep being at the present time about 1° warmer, and at 1 foot deep about 3° warmer than is seasonable. Rain has fallen on three days of the week, the total measurement being nearly ¼ of an inch. So dry had the ground previously become, however, that only a few drops of this amount has found its way through even the bare soil percolation gauge. The sun shone on an average for two and a half hours a day, or for about three quarters of an hour a day less than the October average. This proved another calm week, while the amount of moisture in the air was on the whole rather above a seasonable quantity. *E. M., Berkhamsted, Oct. 14, 1902.*

GARDENING APPOINTMENTS.

Mr. C. Cox, Gardener to the late J. B. Stephens, Esq., Bournemouth, as Head Gardener to Miss Martin, Manor House, Studland, Wareham, Dorset.

Mr. Arthur Horton, for the last five and a half years General Foreman at Grantully Castle, Perthshire, as Head Gardener to W. Middleton Campbell, Esq., at Camis Eskin, Helensburgh, N.B.

Mr. C. Markwell for the past ten years Gardener to the late Lady Frances Fletcher of Kenward, Yalding, Kent, as Gardener to Henry Agnew, Esq., of the same place.

Mr. J. D. Bunn, for the last five and a half years Head Gardener at Foxleigns, near Maidenhead, Berkshire, as Head Gardener to Miss Langworthy, Geys House, near Maidenhead, entering upon his duties on Saturday, November 1.

Mr. George Hadnett, recently in charge of Crotanstown Gardens, Curragh Camp, Co. Kildare, under Mr. R. Weller, as Head Gardener to the Leopardstown Club, Foxrock, Co. Dublin.

Mr. John Banting, for the past seven years Head Gardener at Hensol Castle, Pontyclun Glamorganshire, as Head Gardener to the Earl of Ducie, Tortworth Court, Falfield, R.S.O., Gloucestershire.

Mr. George Hagon, until recently Head Gardener at Fowley, Liphook, Hants, has succeeded Mr. Kettey, as Head Gardener to Mrs. Carr, Trueloves, Ingatestone, Essex, and entered upon his duties on Saturday, September 20.

Mr. William Hagon, late Head Gardener to A. Battey, Esq., South Croydon, as Head Gardener to Mrs. Tristram, Chittlee Park, Liphook, Hampshire.

Mr. F. A. Smith, for over six years employed in the Gardens, Dover House, Roehampton, Surrey, as Head Gardener to A. P. Saunders-Davis, Esq., Pentre, Boncath, Pembrokeshire.

Mr. William Jones, for nearly eight years Head Gardener at Aston Bank, Hawarden, as Head Gardener to Lady Price Fothergill, Hensol Castle, Pontyclun, Glamorganshire; entered upon his duties Sept. 25.

Mr. S. Horton, has succeeded the late Mr. W. Horton, as Head Gardener to W. T. Barneby, Esq., Saltmarshe Castle, Bromyard, Worcester.

Mr. C. W. Tucker, for the last ten years Gardener at Brockenhurst, as Gardener to W. E. Firth, J.P., Hurstby, Lymington, Hants.

Mr. W. C. Price, Foreman and Orchid Grower at Byrkley Gardens, Burton-on-Trent, as Head Gardener to R. N. Hooper, Esq., Stanshawes Court, Chipping Sodbury, Gloucestershire.

Mr. G. J. Squibbe, for the past nine years Head Gardener to the Dowager Lady William Wynne, as Head Gardener to W. Cooper, Esq., Whittlebury Lodge, Towcester; through Messrs. Dicksons, Chester.

Mr. R. Staward, for more than three years Gardener at Danesfield, Walton-on-Thames, as Gardener and Overseer to W. Garton, Esq., Sarisbury Court, near Southampton, and entered upon his duties on August 18 last.

Mr. A. Smith, for fourteen years at Chevet Park, Wakefield, as Gardener to M. Fenwick, Esq., Abbotswood, Stow-on-the Wold, Gloucestershire.

Mr. E. Parry, late Gardener at Holes Hall, Market Drayton, as Head Gardener to A. R. Boughton Knight, Esq., Downton Castle, Ludlow, Salop.

MARKETS.

COVENT GARDEN, Oct. 16.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Cut Flowers, &c.—Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Arums, per dozen	4 0	5 0	Marguerites, Yellow, p. dz. bchs.	1 0	1 6
Asparagus Fern, per bunch ...	0 6	1 6	Michaelmas Daisies, per dz. bunches ...	4 0	6 0
Asters, per dozen bunches ...	2 0	8 0	Montbretias, per dozen bunches ...	4 0	6 0
Bouvardias, per dozen bunches.	6 0	8 0	Pelargoniums, Scarlet, per dozen bunches... ...	3 0	4 0
Chrysanthemum, various, per doz. bunches ...	3 0	24 0	Phlox, per dozen bunches ...	4 0	6 0
Coreopsis, per doz. bunches ...	0 6	1 0	Roses, Mermet, p. bunch... ...	1 0	2 0
Dahlias, per doz. bunches ...	3 0	6 0	— red, p. dozen	3 0	8 0
Eucharis, p. doz.	1 0	2 0	— various, doz. bunches ...	3 0	18 0
Carnations, bnch.	1 0	2 0	Smilax, per doz. trails	1 6	2 6
Gaillardia, dozen bunches ...	1 0	1 6	Stephanotis, per dozen	1 6	2 0
Gardenias, per box	1 6	2 0	Sunflowers, per doz. bunches ...	1 0	2 0
Gladiolus Brenchleyensis, per bunch... ...	1 6	2 6	Tuberoses, per doz. blooms ...	0 3	0 4
Lilium album, doz. blooms	1 6	2 0	Violets, per dozen bunches ...	1 3	2 0
— Harrisii, per bunch ...	3 0	4 0	— Parma, p. bch.	1 6	2 0
Lobelia, Red, per dozen bunches	4 0	6 0	Winter Cherries, per dz. bunches	4 0	8 0
Lily of the Valley, per dozen bunches ...	6 0	18 0			

Fruit.—Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Apples, English, per sieve ...	2 0	4 0	Grapes, new Hamburgh, per lb.	1 3	1 6
— Blenheims, per bushel	6 0	7 0	— — B., per lb.	0 4	0 8
— Cox's Orange Pippin, sieve.	4 0	7 0	— Alicante, lb. .	0 6	1 0
— King's, bush.	6 0	7 0	— Colmars, lb. .	0 9	1 3
— Suffields and various cookers, per bush.	3 6	7 0	— Muscats, A., lb.	3 0	4 0
Bananas, bunch	6 0	10 0	— — B., per lb.	0 9	1 3
— loose, dozen	1 0	1 6	Lemons, per case	11 0	20 0
Blackberries, peck	2 6	3 0	Melons, English, each	1 0	2 0
Cobnuts, per lb. .	0 3	0 3½	Nectarines, A., per dozen ...	8 0	12 0
Cranberries, American. qt....	0 6	—	— B., per dozen	2 0	4 0
Figs, per dozen ...	1 0	1 6	Oranges, case.....	11 6	—
— foreign, box or case	1 9	3 0	Peaches, A., doz.	8 0	12 0
Grapes, Belgians, per lb.	0 6	0 10	— B., per dozen	2 0	5 0
			Pears, per sieve...	1 6	4 0
			— stewing, per basket ...	3 6	—
			Pines, each ...	3 0	5 0
			Plums, sieve ...	2 9	7 0

Vegetables.—Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Artichokes, Globe, per dozen ...	3 6	—	Marrows, Vegetable, dozen ...	1 0	1 6
— Jerusalem, per sieve ...	1 6	—	Mint, doz. bunches	1 0	—
Beans, dwarf, per sieve	5 0	6 0	Mushrooms, house, per lb.	1 0	1 9
— Scarlets, bus.	0 6	1 0	Onions, new, green, doz. bunches	1 6	2 0
Beetroots, bushel	1 0	1 6	— bag	3 0	3 6
Brussels Sprouts, per sieve ...	1 0	1 6	— foreign, case	5 6	6 0
Cabbage, p. tally	1 6	3 0	— picklers, per sieve	3 0	—
Carrots, per doz. bunches ..	1 6	2 0	Parsley, doz. bun.	1 0	1 6
— bag (washed).	2 6	2 9	— sieve ..	0 6	0 9
Cauliflowers, per dozen	0 6	1 6	Parsnips, per bag	2 6	3 0
Celeriac, per doz.	1 9	—	Potatos, per ton	65 0	100 0
Celery, per dozen bundles... ...	10 0	12 0	Radishes, p. doz. bunches ...	0 9	1 0
Cress, per dozen punnets ...	1 3		Salad, small, punnets, per doz....	1 3	—
Cucumbers, doz.	2 0	3 0	Shallots, per doz.	0 1½	—
Endive, new English, per score .	1 0	1 6	Spinach, English, bushel ...	1 0	2 0
Garlic, per lb. ...	0 3	—	Tomatos, English, per doz. lb.	3 6	4 6
Horseradish, foreign, p. bunch	1 6	1 9	— Channel Ilds. per lb. ...	0 3	0 3½
Leeks, 12 bunches	1 0	1 6	Turnips, per dozen	2 0	2 6
Lettuces, Cos, per score	1 6	2 9	— bags	2 6	3 0
— Cabbage, p. dz.	0 9	1 0	Watercress, per doz. bunches...	0 3	0 6

Plants in Pots, &c.—Average Wholesale Prices.

	s.d.	s.d.		s.d.	s.d.
Adiantums, per dozen	4 0	8 0	Euonymus, vars., per dozen ...	4 0	6 0
Aralias, per doz.	4 0	8 0	Ferns in variety, per dozen ...	4 0	30 0
Arbor Vitæ, per dozen	9 0	18 0	Ficus elastica, per dozen	9 0	24 0
Aspidistras, doz.	18 0	36 0	Margeurites, per dozen	5 0	8 0
Aucubas, per doz.	4 0	8 0	Palms, various, each	1 0	20 0
Campanula, per dozen	2 0	6 0	Primulus, p. doz.	4 0	6 0
Chrysanthemum, various	3 0	18 0	Pteris tremula, per dozen	4 0	8 0
Coleus, per dozen	3 0	4 0	— Wimsetti, per dozen	4 0	8 0
Crotons, per doz.	18 0	30 0	— major, per dz.	4 0	8 0
Dracænas, var., per dozen ...	12 0	30 0	Solanums, per dozen	8 0	12 0
Evergreen, per dozen	3 0	18 0			
Ericas, per dozen	9 0	12 0			

Remarks.—The Plums now in the market are Kent Prunes, 5*s.*; Buckinghamshire Prunes, 6*s.* to 7*s.*; Schwetzchen, 2*s.* 9*d.* to 3*s.*; and Bohemians, 3*s.* 9*d.* to 4*s.* Damsons fetch 7*s.* per sieve; Corn-Cobs, 1*s.* per dozen; Cardons, 2*s.* each; Asparagus Sprue, 1*s.* 3*d.* per bundle; Stachys Crosnes, or Chinese Artichokes, 4*d.* per lb.; New Lychees, 11*d.*; Double Walnuts, 10*d.* to 1*s.* lb.; do., ordinary, 6*d.* per lb.; unshelled, 6*s.* per bush.; foreign, in bags, 10*s.*; Chestnuts, per bag, 15*s.* to 18*s.*; English Onions, per cwt. 5*s.*, but these are little in request owing to the quality of foreign Onions. Sweet Potatos fetch 18*s.* per cwt.

Potatos.

Various samples, 65*s.* to 90*s.* per ton. *John Bath, 32 & 34, Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

Liverpool, *October* 15.—*Wholesale Vegetable Market.*—Potatos, per cwt.: Kidneys, 2*s.* 2*d.* to 3*s.*; Main Crop, 3*s.* to 3*s.* 6*d.*: Up-to-Date, 2*s.* to 2*s.* 6*d.*; Bruce, 2*s.* 2*d.* to 2*s.* 6*d*; Turnips, 5*d.* to 7*d.* per twelve bunches; Swedes, 1*s.* 2*d.* to 1*s.* 4*d.* per cwt.; Carrots, 5*d.* to 7*d.* per twelve bunches; do., 2*s.* 9*d.* to 3*s.* 3*d.* per cwt.; Onions, 4*s.* to 5*s.* 9*d.* per cwt.; do., foreign, 2*s.* 6*d.* to 3*s.* per bag; Parsley, 4*d.* per dozen bunches: Cucumbers, 1*s.* 6*d.* to 2*s.* per dozen; Cauliflowers, 8*d.* to 1*s.* 3*d.* do.; Cabbages, 8*d.* to 1*s.* 4*d.* do.; Celery, 9*d.* to 1*s.* 6*d.* do. *St. Johns:* Potatos, 1*s.* per peck; Grapes, English, 1*s.* 3*d.* to 3*s* 6*d.* per lb.; do., foreign, 3*d.* to 6*d.* do.; Pines, English, 6*s.* each; Apples, 1*d.* to 2*d.* per lb.; Pears, 3*d.* do.; Tomatos, 4*d.* to 6*d.* do.; Damsons, 5*d.* do.; Cucumbers, 3*d.* each: Mushrooms, 8*d.* per lb. *Birkenhead:* Potatos, 8*d.* to 10*d.* per cwt.: Cucumbers, 2*d.* to 4*d.* each; Damsons, 5*d.* per lb.; Grapes, English, 1*s.* to 2*s.* per lb.; do., foreign, 4*d.* to 8*d.* do.; Mushrooms, 1*s.* do.; Filberts, 6*d.* do.

Glasgow, *October* 15.—The following are the averages of the prices during the past week:—Apples, American, best, 18*s.* to 28*s.* per barrel; ordinary, 14*s.* to 18*s.* do.; English, 15*s.* to 22*s.* per cwt.; Pears, Californian, Duchess and Clairgeau, 4*s.* to 6*s.* per case; Lemons, Naples, 15*s.* to 20*s.* per box; Grapes, English, 10*d.* to 1*s.* 6*d.* per lb.; do., Scotch, 9*d.* to 2*s.* 6*d.* do.; do., Almeira, 10*s.* to 18*s.* per barrel; Pomegranates, 5*s.* to 6*s.* per case; Tomatos, Scotch, 6*d.* to 8*d.* per lb.; do., English, 3*d.* to 6*d.* do; do, Guernsey, 5*d.* to 6*d.* do; Mushrooms, 2*s.* per lb.; Onions, Valencia, 4*s.* 9*d.* to 6*s.* 6*d.* per cwt.

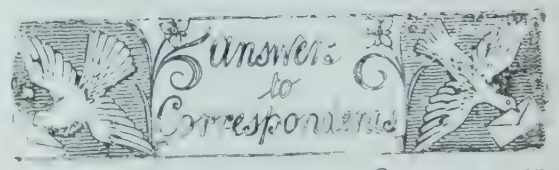
SEEDS.

London, *October* 15.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that the most interesting feature of the present week has been a considerable rise in the value of Red Cloverseed. Scarcely any English seed can now be expected, whilst the forward Russian sales made to Germany, as well as the American sales to Europe, are being cancelled by the payment to the buyers of substantial smart money. Alsyke and White hold well their own, but Trefoil continues quiet. With respect to Ryegrasses the tendency is still upwards. There is no alteration in either Mustard or Rapeseed. Seed Rye and Winter Tares move off slowly at easier figures. Meanwhile, the rates demanded for Kœnigsberg Vetches are regarded as prohibitory. Canary-seed, with light stocks everywhere, and poor crop prospects the world over, keeps very strong. Hempseed, however, droops in price. Blue Peas and Haricot Beans are in short supply, and must be quoted dearer. The Board of Trade Returns give the imports last month into the United Kingdom of Clover and Grass-seeds as 15,695 cwts., value £32,053; as against 10,065 cwts., value £21,775, for September, 1901.

CORN.

Average Prices of British Corn (per imperial qr.), for the week ending Oct. 11, 1902, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1901.		1902.		Difference.	
	s.	d.	s.	d.	s.	d.
Wheat	25	9	25	5	— 0	4
Barley	26	5	26	2	— 0	3
Oats	17	6	17	2	— 0	4



*** Editor and Publisher.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the Publisher; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the Editor. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

A Correction: The size of the Mite on Begonias. — Mr. Fielder informs us that what he meant to say was, the $\frac{1}{1000}$ part of an inch and not $\frac{1}{8000}$ parts of an inch.

A Correction: Lælio-Cattleya × Mme. Chas. Maron (C. Warscewiczii × L. Digbyana). In the report of the Royal Horticultural Society's Show of October 7, at which meeting Baron Sir H. Schroder was awarded a First-class Certificate for this fine hybrid, the parentage was recorded as being C. aurea × L. Digbyana in consequence of confusing the notes of two different plants. The correct parentage is as stated at the heading.

Basic slag: *A. S.* This substance is a by-product of iron smelting. It is rich in phosphorus, and therefore beneficial in soils deficient in phosphoric acid. It is not

immediately soluble, and may be applied in the winter and early spring; 4 oz. per square yard would not be too heavy a dressing.

Begonias: *A. C.* The leaves are affected with mites. Spray them with tobacco-water.

Books: *W. B. Handbook of Hardy Herbaceous and Alpine Plants.* By Blackwood & Sons, London.—*S.* We are not aware of any English translation of Prof. Dehérain's *Agricultural Chemistry.* Mr. Geo. Massee's *Text Book of Plant Diseases* is published by Messrs. Duckworth & Co.

Carnations and Soil: *F. N.* We cannot undertake to analyse samples of soil sent here, but the new loam you have sent appears to be very suitable for the cultivation of Carnations, and indeed most plants.

Chrysanthemum Foliage Disfigured: *Perplexed.* The injury is caused by water dripping on to the foliage.

Conifers, &c., sent in Brown Paper Parcel: *Correspondent.* 1, Thuya orientalis; 2, Rhus Cotinus; 3, Abies concolor; 4, Thuya, perhaps T. gigantea; 5, Retinospora filifera of gardens; 6, Picea polita, Japan.

Disease of Bromus unioloides: *Lord Kesteven.* The fungus is not Ergot, but one of the "bunts," called Cintractia patagonica. It is common on Bromus unioloides in Patagonia. *G. M.*

Entrance to the Botanic Gardens, Kew and Edinburgh: *W. R.* You should apply to the Curator in both instances, who will doubtless furnish you with forms to be filled up.

Eucharis or Bulb-mite: *F. L.* We know of no such book. All that is specially known concerning the bulb-mite in relation to horticulture is to be found scattered throughout several volumes of the *Gard. Chron.*

Fern Fronds Injured: *A Constant Reader.* The injury is caused by a mite. Thorough washing with tobacco juice diluted with water will remove and destroy the mites. *G. M.*

Gardener Going to New Zealand: *A. S.* He should not be above turning his hand to any kind of work that offers on landing. It will be time enough to look out for a situation after he has been in the colony a year at the least. A man's prospects in New Zealand are, if he be industrious, very good.

Heliotrope in England and the States: *J. H. B., Pa.* You are quite mistaken, for instead of being a rare plant in English gardens, it is a favourite flower in most. Cuttings are struck in spring and early autumn, and the plants are cultivated in pots and in the flower beds, besides being planted out in borders, in cool conservatories, &c. Out of doors it does not reach a height of 5 feet in one season, as in Pennsylvania, but standards of H. peruvianum, with heads of the same species or of some variety of the plant, are often met with in and out of doors in the summer season, and very charming these are when planted in groups on the turf or in beds; but they must be protected from frost early in the autumn.

Melon Roots: *W. D. C.* Yes, eelworms. We know of no certain remedy. Bake the soil before using it next time, and grow the plants in another house.

Names of Fruits, Etc.: *We are desirous to oblige our correspondents as far as we can, but the task is becoming too costly and too time-consuming for us to continue it without some restrictions. Correspondents should observe the rule that* not more than six varieties *be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. The fruits should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.*—*J. B. S.* 1, Ross Nonpareil; 2, Boston Russet; 3, French Codlin; 4, Cellini; 5, Winter Pearmain; 6, Northern Greening.—*Z. P.* 1, Golden Noble; 2, Ecklinville; 3, Alfriston.—*L. S. T.* 1, Harvey's Wiltshire Defiance; 2, Braddick's Nonpareil; 3, Cellini; 4, unknown; 5, Beauty of Kent; 6, Domino.—*H. W., Market Harboro'.* 1, Radford Beauty; 2, Norfolk Beefing.—*J. B.* 1, Pitmaston Nonpareil; 2, Emperor Alexander; 3, Round Winter Nonsuch; 4, Golden Spire; 5, Warner's King; 6, Winter Greening.—*W. C. & Son.* The Pear is probably Baron de Mello, but the fruit is so much decayed and mutilated that we cannot be sure.

Names of Plants: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*J. L., Denmark Hill.* Kindly send when in flower.—*J. H. C.* 1, Skimmia japonica; 2, a variety of Michaelmas Daisy, much shrivelled; 3, Chrysanthemum uliginosum.—*W. B.* 1, Inula hirta; 2, I. salicifolia; 3, Solidago elliptica axilliflora; 4, Achillea ptarmica fl. pl.; 5, Veronica spicata var.; 6, Chelone obliqua.—*J. Goatley.* Sidalcea candida.—*J. W.* 1, Pteris cretica major; 2, P. serrulata; 3, Blechnum occidentale; 4, Pteris Childsii; 5, P. cretica cristata; 6, P. tremula; 7, Polypodium pustulatum; 8, Adiantum formosum.—*W. C.* Polypodium glaucum and Anthericum lineare variegatum.—*Constant Reader.* 1, a Juniper, probably a form of J. virginiana; 2, Cupressus Lawsoniana; 3, C. nootkaensis; 4, Thuja orientalis; 5, Cornus mas variegata; 6, Taxus adpressa.—*W. D.* 1, Dactylis glomerata variegata; 2, Ruscus Hypophyllum.—*Frank.* 1, Weigela rosea; 2, Juniperus sinensis; 3, Cestrum fasciculatum.—*K. & B.* Polygonum aviculare, a common weed.—*W. G.* 1, Retinospora plumosa, a form of Cupressus pisifera; 2, Berberis Darwini; 3, Hippophae rhamnoides. — *A. S.* Atriplex hortensis, "Orache."—*H. D. E.* 1, Cryptomeria japonica; 2, Pyrus aria; 3, not recognised.—*Anxious to know.* 1, An Alder, Alnus; 2, Ulmus campestris argentea; 4, Cupressus Lawsoniana aurea; 3 and 5, Retinospora plumosa aurea, a sport from Cupressus pisifera; 6, Rhus glabra.—*F. Noyce.* The Conifer is Abies magnifica; the others are varieties of Michaelmas Daisy. Do not mix fruits with plants sent for naming on another occasion. The practice leads to much confusion, and possible delay. For name of Apple, see next week's issue.—*T. H. O. P.* 1 and 2, varieties of Ampelopsis Veitchi, of which there are several; 3, Leycesteria formosa; 4, Calycanthus occidentalis; 5, Spiræa Douglasii; 6, Tsuga canadensis.

Ox-eye Daisy with United Flowers and Flower Stalk: *W. M.* A very common occurrence in over vigorous plants.

Palm Leaf: *G. W. S.* See reply to *T. L. J.* in our last issue. The disease is the same.

Quitting Service: *A. H.* As a domestic servant you are entitled, in the absence of an agreement, to one month's notice, or money in lieu thereof, together with the value of any perquisites you may have enjoyed, and a sum equivalent to the rent of the cottage you have occupied.

Ripe Grapes Muscat of Alexandria: *H. J.*—The fruits have been ripe for some weeks, and the vinery has not been kept sufficiently dry, whilst certainly the outside border has received a considerable quantity of rain, and the results are decaying berries, which fall from the stalks on the least movement. A little shanking is also observable. The obvious remedies are to protect the outside border with shutters, tarred felt, glass-lights, &c.; to put a layer of hay on the inside border; keep no plants needing water in the vinery, and to use the heating apparatus, and ventilate for an hour or two at times when the air outside is not moist.

Span-roofed Tomato and Fruit-house, 40 ft. long: *Span Roof.* We should suppose that, if erected in plain style, it would not exceed for a span-roofed house £1 per foot run. It could be done for a less sum if corrugated iron be used for the walls instead of brick-work. Read the *Gardeners' Chronicle* for Feb. 2, 1901, p. 79, col. 3.

Vine-leaves: *W. H.* Apparently sunburn; black spots on stem uncertain. No fungus discovered, but there are hard little nodules, like Sclerotium. These have been placed in a damp atmosphere to see if they will develop. Probably the result and not the cause of discoloration. *M. C. C.*

Vines Starting Badly: *G. S. E. B.* The information afforded is extremely meagre. We know nothing of the age of the canes, whether they were for growing in pots and had the right kind of treatment before you got them, nor, except in very general terms, your treatment of the Vines. These are matters of which some one on the spot could form a better opinion than ourselves, 400 miles away.

Violet: *G. G.* A good purple-flowered variety, with large Pansy-like blooms, and very fragrant. Whether or not it is distinct from other varieties we cannot say.

Violets: *H. F.*, and *G. J.* No doubt it is the American spot disease of Violets, stimulated by over-watering. Dry atmosphere and full ventilation recommended. We are afraid that the bed is too deeply affected to be saved by any application of fungicides. The disease is capable of spreading to other plots. *M. C. C.*

Winter Dressing for Pear and Apple Trees: *S. R. W.* Dissolve 3 oz. of soft-soap in 1 gallon of hot water, and when quite dissolved, add a wine-glassful of petroleum, and thoroughly mix the oil with the suds. When using it with a syringe, let another man agitate the wash with a syringe or stir it vigorously, otherwise the oil will float on the surface and be sucked up with the first few pulls, and probably do harm to the buds.

Wood-lice in Cucumber-house: *J. W.* Nothing is easier than to trap them in small flower-pots or drain-pipes, stuffed with half-rotten hay. Pouring boiling water between the walls and the sides of the bed would kill thousands if done by daylight.

Communications Received.—W. Ellis Groves—F. C. Heinemann—W. G. S.—J. K. K. & Sons—C. G. van Tubergen—J. O'B.—W. C. W.—W. N., Next week.—A. W.—M. E. A.—Rev. W. G.—W & N.—Max Leichtlin.—C. J., photos under consideration.—Director R. Gardens, Kew (with thanks).—S. W. F., Photos under consideration (with thanks).—J. R. J.—G. L., photo under consideration.—G. H. Erfurt.—J. L.—S. C.—W. Freeman, Barbados.—A. G. S.—Dr. Henry, Nancy.—M. A.—T. B.—J. L—S. C.—Brill.—E. J.—M. E. A.—W. H.—H. F.—M. B.—J. T. S.—W. B.—K. P.—Constant Reader.—F. N.—W. H. E—C. Y.—F. S.—T. N.—A. A. Pettigrew.—J. F. McL.—T. H. O. P.—J. M. D.—H. G., Canterbury.—Young Gardener. A. F. W.—E. H. J.—C. E. P.—A. C. B.—R. D.—F. R. A.—H. S. Stevens.—J. L.—R. P. B.—W. P. R.—A. J. L.—J. H. N.—J.—G. M. Woodrow.

DIED. — On the 10th inst., at Hanworth House, Chertsey, Elisabeth Anne Henfrey, eldest daughter of the late Hon. Jabez Henry, and widow of Professor Arthur Henfrey, F.R.S., &c., in her 86th year.

Fire at Bolton Hall.—Lord Bolton's seat near Leyburn, in Yorkshire, was practically destroyed by fire on Wednesday evening last.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE.

IMPORTANT TO ADVERTISERS. — *The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper, more than*

TREBLED.

THE
Gardeners' Chronicle

No. 826.—SATURDAY, OCT. 25, 1902.

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THE GHENT QUINQUENNIAL.

THE Council of the Société Royale d'Agriculture et de Botanique of Ghent express the laudable desire to bring the researches of scientific investigators before the public, and to make the approaching Quinquennial something more than a mere exhibition of new or well cultivated plants. They desire to extend the scope of these exhibitions, and to increase their utility by adding to their programme certain classes intended to show the present condition of certain branches of physiological or botanical science which have already, or which must ultimately have, some more or less direct bearing on the practice of cultivation. We have continually to lament the wasted opportunities and narrow limitations imposed on ordinary flower shows, the results of which, so far as the progress of horticulture is concerned, are so disproportionate to the efforts and cost expended on their organisation. If horticulture is to make real advances, not merely to diffuse itself over a wider area, or contribute to the earnings of the prizewinners, its progress must be secured by careful scientific observation and experiment. Our forefathers were good cultivators, although they had not our advantages. Still less had they the opportunities which modern science and scientific method offer. To their experience, so far as it is recorded, or is capable of transmission, we need to apply and utilise the knowledge which scientific observers are constantly bringing to light. For these reasons we entirely sympathise with the aspirations of the venerable Society of Ghent, which next year extends its already well-tried hospitality again to the horticulturists of the world.

The following remarks on Class XXVI. of the recently-issued schedule, freely translated from the *Revue de l'Horticulture Belge*, will be read with interest. In becoming more and more industrial and specialised, horticulture and agriculture will avail themselves more and more of the results of scientific research. Methods of work are more exact. The education of the horticulturist, amateur and professional, must be made more complete, more profound, more varied, and more extensive.

Recognising this fact, the Société Royale d'Agriculture et de Botanique of Ghent has endeavoured, in its international exhibitions, to give a prominent place to scientific research and education. By inviting investigators to exhibit the results of their work and their special collections, and by soliciting professors to show their books, diagrams, and apparatus, the Council of the Society hopes to render a service to all the visitors to the exhibition by assisting them in the higher branches of their studies. It is very desirable to lay before the practical men the newest results, and enable them to appreciate the value of the recently-gained knowledge, and the new ideas of the scientists. The Council has endeavoured to bring together the general public, and the workers who, in their laboratories and herbaria, are engaged in advancing the science of horticulture. This is the object of the classes to be held in connection with the Quinquennial Exhibition of the Society in 1903. The leading idea is to show the progress attained in practical and scientific botany; to indicate, to those interested, new schemes that may throw light on certain subjects now obscure.

For the demonstration of facts already acquired concerning the principal questions now under discussion, the Society invited experimenters to send specimens of various kinds of grafts prepared for demonstration; reports on grafts and stocks, a set of preparations showing the connection between Misleto and its host-plant, and an illustration of rhizobium and the galls caused by it, collections of preparations showing the development of the embryo sac, the process of fecundation, &c. In a similar spirit the Council of the Society desires to include in this exhibition special collections accumulated by scientists in their researches. It is hoped that flower shows may be made something more instructive than mere collections of well cultivated plants effectively staged. They hope to be able to show to those most concerned rare, interesting, instructive, and suggestive specimens. In what museum for public instruction can a collection of "Sclerotes" or a set of hypogæal fungi now be found? the Sclerotes being hardened masses of fungus spawn occurring in the roots and elsewhere, and ready to spring into activity where circumstances are propitious. And yet such collections do exist, and certain specialists are engaged in studying these subjects. Surely it would be serviceable to botanists and to all, especially to those interested in gardening, to have the opportunity of examining these objects of interest so little known outside scientific circles. They would form an excellent object-lesson, to furnish which should be the aim of all exhibitions.

As regards these classes, the jury will not merely have to decide which of two exhibits is the better, but which collections show most progress, which deserve to be rewarded and brought before the public.

As regards Classes 619 and 624, to which the attention of the Council of the Society has been specially drawn, the desire is to offer for public examination collections of an instructive nature.

As regards calcareous Algæ, the ideal scientific collection for study and instruction is that in which the subjects are preserved alive in some suitable fluid; but what principally concerns the Society is to demonstrate to the public that there are such things as calcareous Algæ, and that these belong to very varied types. The representation of types is, therefore, of more importance than is the method by which they are kept alive. If the bulky genera, such as Lithothamnion, Corallina, Jania, or Melobesia, are preserved dry, such genera as Caulexpa, Halimeda, Acetabularia, Cymopolia, Neomeris, Bornetella, &c., must be kept in fluid.

As regards the collection of marine phanerogams, the desire of those responsible for the programme is to put before the public a series of entirely marine phanerogams, including Zostera, Phyllospadix, Phycagrostis, Cymodocea (nematorum), Amphibolis, Halodule (=Halophila), Eschalus, and Thalassia. But is it necessary that the series, to obtain an award, should include twenty specimens; or must it be excluded from award because to the marine species are added certain complementary types from brackish water? Or those only temporarily marine, such as Ruppia, or even Althenia? Certainly not. The jury will above all things consider the care taken to include marine forms only. If the exhibitor succeeds in amassing good specimens of these, the Society will consider that he has paid due care to the requirements of the jury, and does not tie him down within specific limitations.

EDINBURGH WORTHIES.

A good many of the horticultural and botanical authorities of the latter part of the eighteenth century, and the early part of the nineteenth century, appear to have had some connection with Edinburgh, some of them, however, only in a slight degree. A few of these worthies are still known by name to the present generation, but the majority have, we fear, been forgotten. We do not propose in this article to name them all, but to make a rather erratic selection from an ample list, and to relate some details about those so selected.

Dr. Neill.

The first worthy to whom we would refer, is an Edinburgh one, in the person of Dr. Patrick Neill, who was born in Edinburgh about 1776, and died in his native city in 1851. Dr. Neill was like his father, by trade

a printer, and his office was in one of those ancient narrow closes or alleys, which descend from the High Street to the Cowgate, and to the day of his death he was head of the firm of "Neill and Co.," at that period regarded as the largest printing and type-founding establishment in Scotland. It appears the "Doctor" was a well known "character" in the Scottish capital. He was a bachelor, and scrupulous in personal neatness; he always wore sombre black clothes and a well-brushed brown wig; his face looked as if fresh shaven from ear to ear; he firmly adhered to the white cambric cravat of past times; and in walking, used a gold-headed cane, or carried a brown silk umbrella in a half-dragging, half-carrying position. In contemporary print, he appears as an old and rather slim-made gentleman, with a thin visage and prominent profile, and with a slight stoop in his gait. Dr. Neill seems to have been a prominent citizen in his day, for he was several times a member of the Edinburgh Town Council, as the representative of the aristocratic ward, and was noted in the Council for his placid temperament and conservative views. He was always much opposed to innovation, while for old-fashioned practices he had a sort of veneration.

When, at the close of 1809, a meeting was held in Edinburgh for the purpose of establishing a "Caledonian Horticultural Society"—a society which was duly organised in the following year, and incorporated by Royal Charter in 1824—Dr. (then Mr.) Neill became one of the secretaries, conjointly with Mr. Walter Nicol. Upon the death of the latter in 1811, Dr. Neill became sole Secretary, and retained that office until his death. As Secretary, he must have given the members of the Caledonian Horticultural Society satisfaction, for they voted him a piece of plate in 1821, in which year also he was touring on their behalf on the Continent in company with Mr. Forbes, the Society's gardener. Dr. Neill made known the results of this tour in 1823, under the title of *Journal of a Horticultural Tour through some parts of Flanders, Holland, and the North of France, by a Deputation of the Caledonian Horticultural Society.* In 1840, Dr. Neill also published *The Fruit, Flower, and Kitchen Garden*, a work which is stated by a contemporary to be "one of the best compendiums of the art we have." This book appears to be an amplification of an article written by Dr. Neill some years previously in the *Edinburgh Encyclopædia*, and which had been largely plagiarised by horticultural writers of the period. This the Doctor did not like, and in this book, when acknowledging that it was based on the article in question, he adds: "Of that treatise, the writer may be excused for observing, various authors have pretty freely availed themselves; among others, the author of *The Manse Garden*, thus indirectly tendering their testimony of approbation."

Dr. Neill was also secretary of the Wernerian Society, and one of the founders of the Plinian Society of Edinburgh. Perhaps some idea may be formed of Dr. Neill's ways, and of his garden, if we quote from an account written three months after his death, by one who claims to have known him personally. This writer says:—"Those who are grandfathers and grandmothers now in Edinburgh [1851] number among their earliest associations Dr. Neill's garden, and a curious little garden this was. It was a perfect Noah's ark, and more than that, for Noah had no plants in the ark. Here might be seen eagles, owls, a fine specimen of the snowy owl, Passerinæ, Gallinaceæ, Grallatoriæ, &c., and within doors innumerable specimens of parrots and cats. The Doctor was a bachelor, and his sister a spinster. His garden contained botanical curiosities rather than showy plants. In the greenhouses were cultivated such plants as Myrtus pimento, Cinnamomum verum, Laurus camphora, Coffea arabica, some Orchidaceæ, and altogether a very interesting collection of stove and greenhouse plants. Out-of-doors were some interesting herbaceous and alpine plants, with fine specimens of ornamental trees and shrubs. The garden is situated at Canon Mills, on the way from Edinburgh to Newhaven, and about sixteen years ago (written in 1851), when the Edinburgh and Leith railway was projected, it was intended to destroy the Doctor's dwelling, and demolish his garden. He, however, prepared a petition, procured a plan of the garden, with an enumeration of its contents, and proceeded to London, where in the House of Commons he secured such opposition to the project, that the railway company had to alter their plans, and form a tunnel even at some distance from Dr. Neill's house."

This worthy printer and horticultural writer was eccentric enough, we fear, to care more for his plants than his fellow men. For years, it appears, he successfully opposed the authorities in their endeavours to have Canon Mills pond—a large stagnant pond which bred fever and malaria—drained away, because he was anxious about the fate of a very large and handsome specimen of the Weeping Willow that had extended its roots under his garden-wall into the pond.

Walter Nicol.

We have stated that Dr. Neill was for a time associated with Mr. Walter Nicol in the Secretaryship of the Caledonian Horticultural Society. Mr. Nicol, when appointed, had the reputation of being "the best practical writer on Scotch gardening" of his day. His father was the gardener who planned the grounds of Raith, near Kirkcaldy, in Fifeshire, and also the kitchen garden of Wemyss Castle in the same county. He himself began his career under his father at Raith, and eventually became head gardener at Rainham Hall, Suffolk. Returning to Scotland, he succeeded his father as head gardener at Wemyss Castle and remained there till 1797, when he left, and settled in Edinburgh as a garden-designer, and writer on Scotch gardening.

In 1798 he published his *Scotch Forcing and Kitchen Gardener*, and in the year following *The Practical Planter*. In 1809 he published *The Villa Garden Directory;* his *Gardeners' Kalendar* appeared in 1810, and his *Planters' Kalendar* in 1812, but this latter work was completed after his death, which as already noted occurred in 1811. It seems strange that though a good deal is known about Dr. Neill the printer, very little indeed is known about Mr. Nicol the practical gardener. Few now consult the works of either of them, or know them by name.

J. C. Loudon.

But a name still well known among modern horticulturists is that of J. C. Loudon, the author of the *Encyclopædia of Gardening*, which first appeared in 1822, and also the founder in 1826 of the *Gardeners' Magazine.* Loudon was born in 1783, and died in 1843, and his connection with Edinburgh was during his youth. It was in this city apparently that he was "instructed in Latin," and "well grounded in French and Italian," and at the age of fourteen he was placed under a nurseryman and landscape gardener, at the same time attending the University classes of botany and chemistry. Loudon left Edinburgh for London in 1803 when only twenty, and started as a garden designer. Though it is unconnected with Loudon's Edinburgh connection, there are two things in his after-life we should like to note here. First, Loudon had the singular good fortune to make an agricultural college pay handsomely. In 1809 he rented Tew Park in Oxfordshire, and we are told by a contemporary writer that "in conjunction with an establishment for the education of agricultural pupils, he prosecuted farming so successfully, that in 1812 he had realised £15,000." This is not a bad record for three years' work, and we can only wonder how it was accomplished, for nowadays we do not hear of "establishments for the education of agricultural pupils" having farms attached, like Loudon's establishment; and as to profits, the term is never heard; in fact, "grants-in-aid" seems to be the modern version. Foolishly, however, Loudon, when he had been so successful, gave up his farm and dismissed his pupils, and invested his money unfortunately in such a manner as to lose it all in 1814.

Our second point is, that Loudon's well-known works are the children of his misfortune, when he had to begin life again a a landscape gardener. Besides the *Encyclopædia of Gardening*, he issued *Encyclopædias* on Agriculture, Plants, and Architecture, at the same time editing several periodicals; in fact, he worked to the time of his death literally night and day.

Dr. Fothergill.

Our space will only permit us to name three other worthies, but of a different type to those mentioned, who have had some connection with Edinburgh. In 1780 died Dr. Fothergill, whose garden was then known all over Europe. It contained specimens of rare and economic plants from all parts of the world, and of it Sir Joseph Banks wrote: "In my opinion, no other garden, royal or of a subject, had nearly so many scarce and valuable plants." Dr. Fothergill took his degree in Edinburgh, it being stated by a contemporary that "the University Chairs were then filled by Drs. Munro, Alston, Rutherford, Sinclair, and Rummer, whose lectures he diligently attended." We hope his love of botany was gained at Edinburgh, but we rather doubt it, on reading what another Edinburgh graduate, who died in 1799, has to say on the point.

Dr. Withering.

Dr. Wm. Withering, F.R.S., the author of *A Botanical Arrangement of British Plants, including the Uses of each Species in Medicine, Rural Economy, and the Arts*, did not it.

seems, get his botanical tastes in the University class-room at Edinburgh, for he wrote thus to his parents from the University: — "The Botanical Professor gives annually a gold medal to such of his pupils as are most industrious in that branch of science. An excitement of this kind is often productive of the greatest emulation in young minds, though, I confess, it will hardly have charm enough to banish the disagreeable ideas I have formed of the study of botany."

Sir James Smith.

On the other hand, one of the gold medallists in botany at Edinburgh University was Sir James E. Smith, the founder and the first President of the Linnean Society, author of *English Botany* and *An Introduction to Physiological and Systematical Botany*. Dr. Smith, for he graduated in medicine, must have obtained his knowledge of plants and love of botany when studying under Dr. Hope, and to such a degree that he is stated to have protested against this science being valued "only in proportion as it affords nauseous drugs or salves."

These are a few of the names associated with the sister sciences of botany and horticulture that have some connection with the Scottish capital. We have used the privilege we claimed of being erratic in our choice, for we are aware that there are many more that might have been mentioned. To these we may at some other time refer, if this sketch awakens any interest among those who claim to be the "apostolic successors" of the horticulturists of the past century. *R Hedger Wallace.*

MARKET GARDENING.

AUTUMN CULTURE OF GROS COLMAN.

Though my remarks may apply more or less to other varieties of Grapes in cultivation, at the same time I shall confine my attention principally to the requirements of this most profitable and useful keeping Grape. The question of flavour, a true test of good culture, may crop up in the minds of many who have this variety in hand, and who from a variety of causes fail to develop its true character. This Grape, above all others, should have a house to itself, to do full justice to its requirements; other points also arise from this, such as the keeping qualities, which can really only be fully developed under a culture of its own.

Having had this Vine and its crop under my own immediate care for so many years, and being in a position to note the result, from the inspection &c., of some of our leading growers, such as P. E. Kay, James Sweet, the Rochfords, &c., I am well within the mark in defining the general conditions which appertain to the due autumn treatment of both the Vine and its crop. Only this week, on making a call on one of our best growers, and with a full crop hanging, I found extra hands busy watering. The borders being inside, and raised some 2 feet above ground, are naturally inclined to be dry, especially at the junction of the walls, as also in the immediate neighbourhood of the pipes. Such border watering is a very strong point, especially when we consider that there is actually more root-action, as also new root-making, in October, than at any period of the Vine's growth. The affinity between this root question must ever determine first the leaf, as also the perfecting of the root. Foliage, the mainstay of all Grape crops, is another point with this particular variety.

The question of actual root and border watering is always a moot question with some, but the fact is very apparent if from any cause there is any deficiency. Never at any time is it possible to over-water the actual front of borders, this water in a duly constructed border not only going through in due course, but also spreading before it is lost in the drainage. Another point is the due damping or watering of surface borders, to preserve the fibrous roots of the present autumn season's growth. In bad weather it would pay to rake the old littery mulching back, then water and replace the spent material; this will do good not only by conserving the moisture, but also by preventing the excessive evaporation rising to the hanging Grapes. Feeding should be another strong point.

Luckily the grower has duly appreciated this most important item, and here the full application of suitable chemical manure food plays a very important point, not only in the finishing of the crop, but also in the maturation, &c., of the wood for the ensuing season's crop. It is also not possible to over-estimate the value of autumn feeding.

Firing is a most important point, first to secure the proper points in the growing, &c., as also to keep the fuel account within reasonable limits, requires a very careful attention.

I am always interested in, when going round with, good and large growers to see them feel the pipes; this of itself tells one they, as proprietors, have an eye to the main point—economy; and could we instil this into the mind of the stoker, much would be saved under this heading.

Ventilation is another important matter—is of the greatest attention, above all to observe duly the points from which the winds blow. A rush of cold air at no time can be good for either Vine, foliage, or crop.

In conclusion, as to the weight of crop, it is well known that while this variety is a heavy cropper, to be on the safe side, year by year 20 lb. per rod is quite enough, this with a double or treble rods meaning 40 or 60 lb. to one set of roots.

Much more could be said respecting this, the best of all market Grapes; but I am content in thus briefly summarising the chief points of present culture as adopted by the most successful growers. Gros Colman, a Grape that takes nine months to finish for the late crops, may and is done in seven or eight months for the earliest crop. Fire-heat from the very start is an essential feature of the growing; this, combined with a liberal treatment, as per particulars I have noted in this short paper, cannot but end in success. *Stephen Castle, October* 18, 1902.

WEST INDIES.

SWEET CASSAVA.

I notice in the course of an article on "Grain Food and Meal of British Commerce," which appeared in the *Gardeners' Chronicle* for May 3 last, the statement that the juice of the Sweet Cassava contains no poisonous properties.

This question was dealt with in the first number of the *Agricultural News*, issued by this Department, where on p. 5 a summary is given of the present state of our knowledge as to the poisonous nature of Sweet Cassava, based upon the recent confirmation by Prof. P. Carmody, Island Professor of Chemistry at Trinidad, of the results obtained by his predecessor, Prof. Francis, so long ago as 1877. The belief in the non-poisonous nature of Sweet Cassava seems very deeply rooted, and very difficult to eradicate, even in the West Indies, where deaths occur from time to time from children and others eating improperly prepared Sweet Cassava. *W. G. Freeman, Scientific Assistant, Imperial Agricultural Department for the West Indies, Barbados.*

THE LILY SEASON OF 1902.

When last I wrote to the *Gardeners' Chronicle* upon this special theme, only a few of the finest Lilies in my garden had bloomed; the others were only preparing for their floral revelations. Those whose characteristics I endeavoured to indicate on that occasion were Lilium Hansoni, which I had not seen previously, but found supremely attractive by reason chiefly of its exquisite golden hue, shining like sunlight on a somewhat low border, beneath a sheltering south wall; Lilium Szovitzianum, which, strongly established by the growth of years, flowered magnificently; and Lilium Washingtonianum, which, though very beautiful and richly odorous (surpassing in this respect even the speciosums), never reaches in my garden a greater height than 3½ ft. I learn, however, from a Californian naturalist, who occasionally enriches with his picturesque writings the columns of this journal, that in its native California, among the Sierra Nevadas, this loveliest of Lilies grows much more impressively. A highly interesting contemporary of the Washington Lily, also a native of far-distant California, was Lilium Burbanki ×, manifestly a derivative from Lilium pardalinum, with which I carefully compared it when in bloom. It appears, however, somewhat earlier than the famous Panther Lily, and considerably later than its other parent, which in no respect does it even slightly resemble Lilium Washingtonianum.

No sooner had these American Lilies reached the period of decay, than Lilium candidum, whose supreme characteristics are perfect purity and gracefulness, appeared upon the scene. It is saddening to learn from so many earnest cultivators that this noble Lily is so liable to disease, which made havoc of its beauty during this season in the gardens of Logan House in this parish, where nearly all the finest Lilies from the East and the West are assiduously and most successfully cultivated by Mrs. McDowall; and where Lilium giganteum attained this summer to a height of 11 feet.

The past season, though somewhat unfavourable for Rose cultivation by reason chiefly of the exceeding rareness of strong sunlight, and the frequent devastating presence of violent thunderstorms, seems to have greatly stimulated the growth and development of such Lilies as Lilium Henryi, a native of China (generally described as an orange-coloured speciosum, though I regard it as quite distinct from that species); Lilium chalcedonicum, the lustrous scarlet Martagon, and several of the stronger-growing auratums, especially the grand variety entitled platyphyllum, one specimen of which was 8 feet high, and flowered luxuriantly. Its blooms, however, are not so richly spotted as some of the older and more familiar forms, which, it may be added, have also larger flowers. Among modern hybrids the most effective is unquestionably L. a. rubro-vittatum, which has manifestly derived from one of the darker speciosums (such as L. s. Melpomene) its blood-red crimson rays. This is a Lily which should be extensively cultivated, if only for its unique capability of artistic contrast. It has been frequently asserted of Lilium auratum, that it is not enduring, but my experience of it has, in most instances, been widely different, seeing that it has bloomed in the same situations in my garden for seven or eight years. Only in very few cases has this Japanese Lily, after flowering profusely for one season, entirely disappeared.

Of even greater vitality and endurance are the various varieties of Lilium speciosum, which, in addition to its richly ornamental beauty, has a delicacy of fragrance extremely rare. For this special reason, it is admirably fitted for growing in the conservatory; though it is also well adapted for garden cultivation. It has a strong aversion, like most Lilies (which do not like ammonia), to manurial stimulants; which,

reaching its roots from the Rose-trees in my garden, have not seldom affected its flower-buds, n their embryonic stages, like premature decay. In this manner, some years ago, a noble specimen of the great Himalayan Lily, Lilium giganteum, was ruined, just when it was on the confines of floral expansion.

Lilium longiflorum has been especially impressive this year, especially the fine varieties entitled Harrisii and eximium, of which the latter form, though only reaching a height of 3 feet, has strangely been given the name of "giganteum." This, however, may be intended as a permanent tribute to the dimensions of its snow-white, intensely fragrant flowers. *David R. Williamson.*

TRANSPLANTING.

The methods of transplanting are, and have been, varied; some are rude, as, for example, the old practice of reducing the top growths to correspond with the reduction of roots lost in the operation. Others, on the other hand, have gone to the opposite extreme, and at great expense, far beyond the value of the tree operated on, have removed not only the tree with its roots, but also the soil to an amount far beyond what would be necessary under any circumstances. The question whether any large tree is worth removal when young stuff can be obtained, need not be touched on here, because trees of a large size up to thirty or even forty years of age form an important and immediate feature in planting operations, and the system, since the revival of gardening in Europe, has always appealed to those who have been engaged in furnishing naked grounds, as well as to those who have to make good any blanks in existing arrangements.

At the beginning of the last century, Sir Henry Steuart, of Allanton, Lanarkshire, brought the practice of transplanting large trees and shrubs to the highest state of perfection, and perhaps no better system than the one he followed has yet been found. Shortly, the trees selected were prepared two years previous to removal by cutting back the roots extending beyond a given distance from the bole. The method of transplanting consisted in lifting all the roots without soil, the tree being carried on a machine with two wheels and a long pole, the latter being securely fastened to the trunk, after which the pole with the tree was pulled down to a horizontal position; horses were then yoked to the part where the roots hung over, and the whole being carefully balanced, it required only one or two men to keep the whole steady, and to turn the tree when the road diverged from the straight. The tree, when its destination had been reached, was drawn to an upright position, the roots spread out, and it was then guyed by means of stout ropes, after which soil was spread among and over the roots to the required depth. Details of the system are given in *The Planters' Guide*, 1828. It was strongly recommended, among others, by Sir Walter Scott, who at Abbotsford practised the new method.

FIG. 97.—DAPHNE BLAGAYANA AT GLASNEVIN. (SEE P. 301.)

[This method is not practicable with trees having several tons of earth attached. ED.] A Mr. Young, who saw the operations in progress, has left on record that ten men with two horses in one day removed two trees, 28 and 32 feet high, with girths of 30 and 36 inches. When the Earl of Haddington succeeded to the Tyninghame and other estates in 1828, he immediately commenced operations, and had a number of trees cut round and undermined in the winter of that year, and continued during his lifetime to prepare and plant a number of large trees annually. Where no trees existed in 1829, we find examples to-day of full-grown timber, that few who are unaware of their history would believe could have been so limited a period in the places they adorn. This nobleman, however, modified very considerably Sir H. Steuart's methods. Instead of lifting roots alone, he initiated the practice of cutting these pretty hard in, and when ready to lift, a square ball of soil was cut with spades, the sides and bottom and a part of the top of which were protected by means of thin boards, which were held in position by chains tightened with screws. The machine with its pole was used in the same manner as already described, but the ball in its box was firmly secured by strong chains to the machine, the horses being yoked to this end, and the top of the tree was steadied by a couple of men. By this method four large trees could be prepared, moved a mile or more, and planted in one day by a staff of five men with two horses.

The machine with its pole is not absolutely necessary, but it effects a great saving in labour and time. However, as late as the Diamond Jubilee Year I had a day's notice to remove an Oak tree, planted sixteen years previously, to a neighbouring town at three miles distance. It was growing inside a fence that could not be removed, but by means of rollers, formed of short lengths of Fir, the tree, with its boxed roots, was drawn by a block-and-tackle on stout boards over the fence on to a lorry, conveyed safely to its destination, and let down into position by the same means, at two hours past noon. Forty to fifty cubic feet of soil was carried with it, and as a matter of course, the tree did not suffer to any great extent from its removal.

It is, of course, impossible to attach shrubs to a machine of the same nature, but they may be prepared in exactly the same manner, very large ones to stand two years, those not so large one year, or even they may be cut round in the spring and removed the same year. But it is only the larger subjects that, as a rule, require boxing. Boxing is not only a certain method of protecting balls and roots from damage, no matter how far the journey or how rough the road, but it is a great ease to workmen in handling very large shrubs. The most efficient method of removing these from original positions is to excavate a sloping roadway on which to lay planks, if possible reaching from a little beyond the centre of the ball to the vehicle on which the shrub is to be carried. By means of short rollers and two stout boards placed between these and the bottom of the boxed ball, the heaviest shrub can be expeditiously handled by means of block-and-tackle, and by the same means let down into its new position. What will appeal to all owners of subjects to be operated on is that boxing either in the case of trees or shrubs is absolutely safe. No losses can occur through death unless matters have been grossly mismanaged. And in country places the tackle necessary can be prepared on the spot at little expense. *R. P. Brotherston.*

PLANT NOTES.

GERANIUM GRANDIFLORUM.

This plant has recently come into English gardens from the Himalayas, and is destined to become a universal favourite. It will soon be within reach of every amateur. I mention it that all gardeners may look out for it without delay. Whether it is G. grandiflorum (Edgeworth), described in the Linnean Society's *Transactions for* 1846, seems doubtful. It is certainly a very superior plant to G. palustre, to which G. grandiflorum (Edgeworth) is referred in the *Index Kewensis*, and in Sir J. Hooker's *Flora of British India*, vol. i., p. 430. The flowers are larger than those of G. pratense, and of a brilliant blue; the habit of the plant dwarf and compact. It flowers from June onwards, and ripens seeds in abundance, which come up readily and flower the second year or even the first, for I notice one just come into flower, which I think I sowed in February this year. I believe we are again indebted to Herr Max Leichtlin for a grand novelty. This is the third year I have flowered it It thrives in any garden soil. It may be described as a dwarf and refined G. pratense with enlarged flowers. *C. Wolley Dod, Edge Hall, Malpas.*

DAPHNE BLAGAYANA.

This pretty hardy evergreen shrub was described in our issue for February 21, 1880, p. 245, and the figure of a shoot and head of flowers then given we reproduce on p. 302, fig. 99, of the present issue. It is a native of the Styrian Alps, where it blossoms about the month of May. It was found by Count Blagay, to whom it was dedicated, on the Lorenzeberg, near Gratz, in Styria. It is said to grow with Erica carnea in calcareous soil. From its dwarf, spreading habit, it is very suitable for planting on artificial rockeries, and its powerful fragrance makes it especially welcome as a garden plant.

We first met with it at the Quinquennial Show at Ghent in 1878, where it was exhibited by M. Van Houtte, at a time when it was scarcely if at all known in this country, at least in a cultivated state. When shown at South Kensington, on February 10, 1880, by Messrs. Veitch & Sons, it was awarded a First-class Certificate. For a full description of the plant we would direct our readers to our issue for February 21, 1880.

The plant should be planted in a sunny, exposed spot, but even there it will not succeed or flower well if the root-stock, which has a tendency to push itself above the soil, be not covered with moss and small stones and boulders, and the roots kept cool and moist (see note by M. H. Correvon in the *Gardeners' Chronicle*, April 15, 1882, p. 504). Our figs. 97 and 98 were taken at Glasnevin, and show a full-grown plant in flower on March 21, and the same after the boulders have been placed on the branches and root-stock on May 12.

PLANT PORTRAITS.

Pear Doyenné de Montjean, *Bulletin d'Arboriculture, &c.*, September. — Fruit medium to large, oblong, tapering to both ends; stalk short, skin brown; flesh white, juicy; season March to April.

Certopodium punctatum, *Lindley.* — *Garten Flora*, October.

Pinguicula caudata — *Revue Horticole*, October 1.

THE SEED CROPS.

The Grass and Clover Seed Crops. — The cold, sunless season which has so injuriously affected the home-grown seed crops in many particulars, has, on the whole, proved favourable to the development of the grass-seed harvest in Germany, as well as in the United States. As it is reported, the yield this year is better than that of last year, the harvest being a fortnight later than usual. Reports which have come to hand state that the creeping and marsh-bent grasses (Agrostis) cannot at present be reported upon, owing to the lateness of the harvest; but the outlook is favourable, and the American crop is promising, and it is thought prices will rule a little lower than usual. The Yellow Oat-grass of the trade (Aira flexuosa [?]) has yielded a somewhat improved crop this year, though samples are of varying quality, and some quite light; it is expected last year's high prices will rule. The tufted Hair-grass (Aira cæspitosa) is being harvested; the expectation is an average crop, with a continuation of last year's prices. Meadow Foxtail (Alopecurus pratensis) is a good crop, and it is anticipated the yield will be sufficient to meet every demand, while the quality is good. It is difficult to say at present how prices may rule. One large grower points out that some exporters not well conversant with the business are shipping seeds in a damp condition, and they are in danger of becoming heated in transit, with a certain loss of germinating power.

Very little seed has been harvested of the true form of Anthoxanthum odoratum; the yield of the Sweet Vernal appears to decline in quantity year after year, notwithstanding that prevailing high prices form an inducement to cultivators and collectors. The demand for A. Puelli is found to become less every year, what there is of it commands a high price.

The tall Oat-grass (Avena elatior) is mainly a French crop, and though no samples have come to hand, it is generally regarded that last year's prices will be maintained. Some seed is of Styrian growth, but it is of inferior quality to that produced in France; it is thought about the same quantity as last year will be realised of the latter, and prices be similar. A. flavescens, which is regarded as the true yellowish Oat-grass, is not yet reported from France; it is expected there will be no reduction upon last year's prices.

In the early part of the year there were prospects of a good crop of Crested Dogstail-grass (Cynosurus cristatus), but on account of the heavy rains which have prevailed in this country, in which a good deal of the seed crop is produced, the samples are said to be discoloured; the fine bright colour so much esteemed in the seed will therefore be wanting. The quantity is a good average one, and it is anticipated there will be a fall in prices.

Cocksfoot-grass (Dactylis glomerata), which is largely grown in New Zealand for seed, is reported as having produced crops much inferior to those of the past three years; there is a lack of colour and plumpness in the grain, and the vitality is not so good as might be desired. The fact that high prices are asked for New Zealand produce has acted upon the American markets, and an advance has taken place in them. It is expected that seeds of bright colour and high germinating quality will command long prices. Hungarian seed is not so clean as could be desired, yet the price is high. German and French productions of Cocksfoot lack quality and purity.

The Tall Fescue-grass (Festuca elatior) shows a rather smaller yield than last year, and it is said to be much mixed with Cocksfoot, though some good samples have been seen on the market. F. duriuscula (Hard Fescue-

Fig. 98.—Daphne blagayana, growing in Glasnevin Botanic Gardens.

grass) and F. ovina (Sheep's Fescue) both show abundant crops, and in consequence prices are lower than those of last year; but as many lots are found to contain impurities, the best samples will, it is anticipated, be fairly high in price.

The Fine-leaved Fescue (tenuifolia), is a good crop and quality. Southern Germany has shown the best yield. Much of the seed sent in is very light, and of inferior quality; plump, heavy seeds are in demand, and high prices are being paid for them. The American crop of Meadow Fescue (F. pratensis) is a great improvement upon that of last year, so far as quality is concerned; prices are very low, but the quality of the seed leaves much to be desired; it is discoloured through the influence of rains, and the growth will be somewhat imperfect. Those who are fortunate enough to hold over bulks of good colour from last year will be fortunate.

From Denmark there are reports of a medium harvest. Moderate prices are being asked for fine light seeds. It is advised that discretion be employed in the purchase of Meadow Fescue, notwithstanding the low prices of the American market. Both F. heterophylla (known as the variegated-leaved Fescue) and F. rubra (red Fescue), have yielded but small crops, and are procurable only at high prices.

Of the Poas, the Wood Meadow-grass (P. nemoralis) has produced but a small crop; and while the quality on the whole is considered satisfactory, there are yet a good many impurities among the seeds, and the loss in cleaning being heavy, prices have to be advanced. P. pratensis (the Smooth-stalked Meadow-grass) is scarcer in America than last year, and quotations are higher; it is said that in some parts there is only 40 per cent. of an average crop. Some have held over good stocks from last year. The growth of seed of this grass is a matter of the first importance. The Rough-stalked Meadow-grass (P. trivialis) is in Denmark a satisfactory crop, both as regards quantity and quality; prices are expected to remain about the same as last year, varying according to quality.

The crops of the two Brome-grasses, which appear to be those most generally grown (Bromus inermis and B. pratensis), show an improvement over those of last year, both in regard to quality and quantity. Holcus lanatus is a satisfactory crop. Phalaris arundinacea has furnished a good yield also, while the quality is excellent, and there will be a possible lowering of prices. As to Clover-seeds, it is rather early to report, but the Crimson Clover has produced a good crop in some parts; in Bohemia and Silesia a somewhat moderate one has been realised. French seeds show the finest quality; prices, it is expected, will be fairly low.

It is thought there will be an average crop of Red Clover of good quality. On the other hand, White Clover is below the average as to quantity and quality; and as no stocks were brought over from last year, prices will be high. It is anticipated there will be a good average crop of Lucerne, though some reports point to an average yield. Sainfoin has been harvested in fair quantities of good quality in some parts. Bohemian and Styrian crops have been partly damaged by rains; the quality of the French crop has not yet been determined. *Pisum.*

FIG. 99.—FLOWERING SPRAY OF DAPHNE BLAGAYANA. (SEE P. 301.)

THE CUCUMBER-LEAF BLOTCH.

PROBABLY no fungus disease which is attacking Cucumber and Melon plants under glass, has produced such widespread alarm and disastrous results as that to which Dr. M. Cooke refers in the article printed in the *Gardeners' Chronicle*, at p. 241. As is pointed out in the opening remarks, the disease has been known to men of science for several years, and it may also be said that it has not been unknown to market gardeners. The disease has, I believe, been known about Hampton for three years, but the attacks were confined to a plant or two, and occurred late in the season, when a large bulk of the crop may be said to have been gathered. This year, however, the mode and the time of attack have been quite new, and in view of these facts, I would like to say a few words from the grower's standpoint. Dr. Cooke says that the "appearance of the disease is entirely due to artificial creation, rendered possible by the rushing mode of cultivation." I am rather inclined to believe there is quite a mistaken notion as to the methods market growers' adopt. Certain it is that the plants are not grown in any sense differently from the methods that have been employed for nearly thirty years past. I was holding the position of departmental foreman in the Messrs. Rollisson's Nursery at Tooting, when what was to be henceforth known as "Rollisson's Telegraph," was being grown for seed, and before it was distributed. The variety had been grown next door for years, before it was one day noted by one of the firm. Heat and moisture were always the recognised factors in obtaining good Cucumber fruits, and the system employed at Tooting in no wise differed from the system adopted by scores of market men to-day and for many years past. Yet we are frequently told that Cucumbers are steamed into growth, and that the houses are reeking with moisture, and so on. Indeed, it may be so in certain instances, but I also know that in a great many other instances, intelligent men adopt rational means of cultivation which are identical with those employed for many years past. But these methods, while producing the finest crops in past years with freedom from disease, are suddenly found to be useless and unavailing, and a disease of the deadliest character suddenly appears, simultaneously attacking crops in widely separated areas, and without any apparent cause, so far as the cultural side of the subject is concerned. In its suddenness, in the widespread character of the disease, I know of no parallel in fungoid diseases since that which a decade and a half since robbed our gardens of Lilium candidum. This also appeared with suddenness, and in divers places simultaneously, and my own impression is that the present visitation is something akin.

Some stress has been laid upon compound houses, and naturally where such exist the disease is distributed very rapidly. In this district, however, the majority of the houses are detached, but whether in the one or the other case, all Cucumber growers have suffered. So far as the present season is concerned, I am strongly of opinion that the long spell of cold sunless weather in May, had much to do with the greater virulence, as well as the generality of the attack. Little or no sunlight or sunheat, was experienced, the houses were less ventilated, and the germs of the fungus present, little remained to render the disease epidemic.

Dr. Cooke further assumes that Cucumbers are grown in the same soil for more than one year. This is erroneous. Some few growers may do so, but a large number of them recognise the importance of having fresh soil every year, and in this district at least, the whole of the soil is cleared out, the houses disinfected with sulphur, and the walls whitewashed, even before the winter crop is introdnced. Indeed, in one instance where the disease cleared off the entire lot of plants, the houses were quite new, and as the plants were only half grown, no preparations for cutting had been made and no hampers had been received.

Perhaps the most gloomy part of Dr. Cooke's article is that stating the disease is "almost certain to recur year after year," but if only upon the conditions cited as to soil, then other growers who use fresh soil each year should have practical immunity from attacks. A difficulty that besets the grower is, that the fungus attacks the upper surface of the leaves, and these latter, drawing day by day to the glass, and often adhering to it, render spraying almost useless. If spraying be adopted at all, it will of necessity have to be done quite early in the life of the plant, and kept up at intervals of a few days, firstly, while the main bine is reaching its fullest height; and secondly, while the lateral breaks and the leafage upon them may be said to be available for the syringe. What should be strongly impressed upon growers of Cucumbers at this time, now that houses are being cleared, is the necessity for fumigating the diseased plants as they stand in the houses. A few old flower-pots, some hot coals, and a double-handful of sulphur in each pot, will produce a dense cloud sufficient to check what is still in the plants; and in any case, the precaution will be a prudent and inexpensive measure. *E. Jenkins, Hampton Hill.*

CULTURAL MEMORANDA.

CARNATION "RIVIERA MARKET."

This is a variety which surpasses the old Marguerite Carnation for winter flowering, the flowers being much larger and fuller and very fragrant, and the plant quite as free-flowering. The plants we had here last winter, which were raised from seed, commenced to flower in the second week of the present month, and did not cease to flower till the following June, giving a brilliant display all through the winter. The plants were grown in 10-inch pots, and most of them were 2 feet in diameter. This year I raised my plants from cuttings taken off the old plants, and put to the number of five in 3-inch pots, plunging them in ashes under handlights, placed over hot-water pipes, and in the stove. By the end of the month of February they had rooted very freely, and were removed from the handlights and put on shelves in the stove for a few days to get them inured to less confinement. They were then potted singly into 60-size pots, and placed on a shelf in a greenhouse till the roots seized upon the compost, which consisted of three parts loam, one part leaf-mould, and enough sharp sand as would keep it open. They were then placed in a cold frame, and the lights removed by day when the weather permitted. Towards the end of May they were planted on a south border and kept dwarf by pinching the points. In dry weather the plants were occasionally afforded weak manure-water. They were lifted and potted in 10-inch pots for flowering, and placed in a deep cold frame, kept close, and syringed for a few days, and at the present date the plants are beginning just to flower, the greater number having from twenty to thirty flower-buds on a plant. *H. Avery, Abbey Gardens, Battle, Sussex.*

TWO UNRECORDED CRINUMS,

Allied to C. pauciflorum (*Baker*).

Both these plants are undoubted Central African, although some doubt exists as to the precise locality where one of them (C. Samueli) is indigenous. I have had some doubts as to whether either of these plants possessed sufficiently distinctive characters to warrant the creation of new species, and I fear that the result of such procedure in the future, if copied, will be to make a great number of new species ranging round Mr. Baker's type. Yet, on the other hand, it by no means follows that the first plant of this section which happened to be introduced and named "pauciflorum" represents the dominant type When a number of species and forms have been described, and botanists have obtained a grasp of the whole section, then possibly some writer will select the dominant type as a good species, and reduce to sub-species other forms ranging round it in tolerably close alliance. But this cannot be done with our present knowledge of the vast district where these plants exist.

Led by these thoughts I can see no other way of correctly describing the two plants under notice, except as new species, because they cannot be reconciled with any previously made.

Most of the deciduous Crinums from Central and Southern Africa possess a peculiarity in their leaf-growth, first noted, I believe, by Sir Charles Strickland. In a paper which he read to the Royal Horticultural Society on October 14, 1890, he says:—"These make three or four fresh leaves every year, which last for three years, dying down more or less completely in the winter, so that the three or four middle leaves are the middle part of last year's leaves, and the three or four bottom leaves are the bases of the leaves of the year before." Of course, when these plants are examined in full growth, the narrower young leaves of the current year's growth have their apices intact, whereas the wider old leaves have no apices, and look as though they had been cut off; it is therefore impossible to obtain a complete specimen of a leaf without taking parts of two, one old and one young, and perhaps even a third for the middle width. I fear this characteristic causes some trouble in herbariums.

Many of these deciduous Crinums (in common with Brunsvigia, &c.) have the character of exuding from any broken tunics of the bulb a milky juice, and these forms are all difficult to grow in this part of England. Sir Charles Strickland made the following note in his paper when dealing with this deciduous section:—

"One rather extreme form is Mr. Baker's C. pauciflorum, with two flowers having very long tubes, which I have received from Lake Nyassa. I have two or three forms from the Upper Zambesi, varying in the colour and width of the leaves and the length of the tube."

Neither of these new species I am now describing can be said to be of any horticultural merit, compared with the many splendid members of this genus, yet they are both beautiful, and will be of interest in botanical gardens and in special collections.

Crinum Wimbushi (*sp. nova*).

This plant was sent me several years ago by the Rev. John Wimbush, who gathered it at Kota-Kota by Lake Nyassa. It first flowered at Isleworth, in my vinery, in June, 1898, when I regarded it as a variety of C. pauciflorum. I was in no hurry to publish any particulars of it at the time, but preferred to wait until the plant had flowered several times. I have thus been able to ascertain that certain characters of the plant (irreconcilable with C. pauciflorum) were

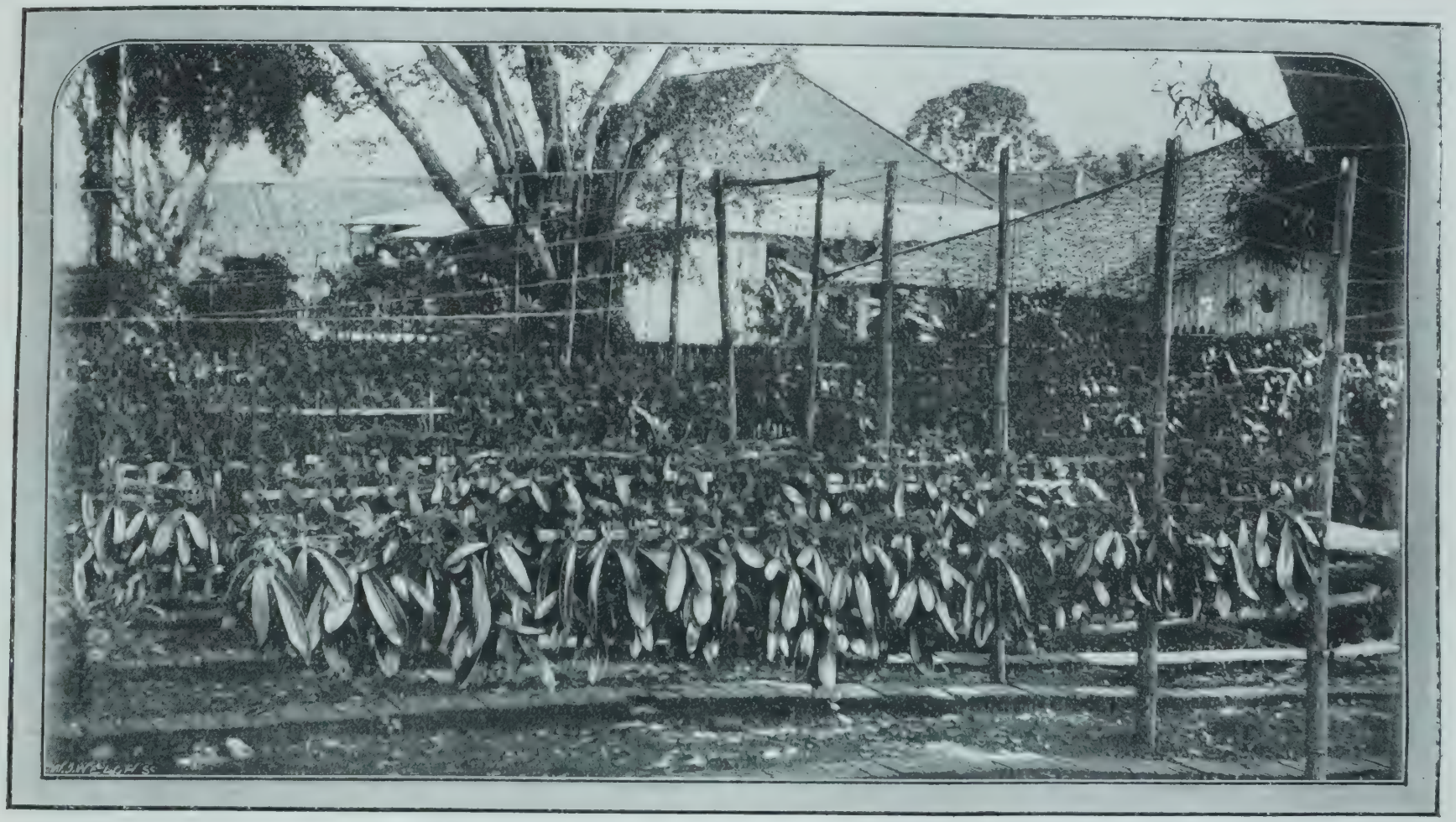


Fig. 100.—M. Rimestadt's orchid-garden in Java. (see p. 306.)

constant, and not merely abnormal incidents. I hoped also to obtain in time ripe fruit, but in this I have been disappointed.

I am sure that sterility is not the cause of this failure to obtain fruit, and that, under proper conditions of growth, fruit would be carried. This appears indeed to be essential to the existence of any species, the more so in this case, in which no gemmation has occurred during the five years I have had the plant. C. Wimbushi has now flowered with me four times, and always in early summer. It winters safely in a dry state at minimum temperatures of 45° to 50°, and will do well in a Cactus-house during the growing season.

DESCRIPTION.

Bulb.—About 3 inches in diameter by 2½ inches in height, with a short, distinct neck, and brittle, loose tunics. The bulb itself is firm, round, and strictly deciduous.

Leaves.—Eleven or twelve leaves in a well-grown state (besides the tips of younger leaves), deeply channelled, spreading, weak, with a very long, tapering, finely-pointed apex; edge entire. The oldest leaves 2½ inches in maximum width, the middle growth up to 4 feet in length, the young leaves only about ½-inch wide.

Scape.—Erect, bearing from two to six sub-erect, sub-campanulate, substantial white flowers. Height of entire inflorescence 1½ ft., but this is insufficient to carry the flowers over the top of the foliage.

Pedicels.—Erect, less than ½ inch long.

Tube.—Slightly curved, 3 to 3½ inches long.

Flowers.—White, with a slight flush of pink on an external keel; faintly fragrant, lasting two days in perfection. Span, 3½ inches or more.

Segments of Perianth.—An inch wide in the case of the inner, and less than ¾-inch wide in the outer; equal in length to the tube.

Limb.—Cone-shaped in elevation, with only the very tip (of the segments) recurved.

Filaments. — Slightly shorter than the segments, tipped with pink in their upper half.

Stamens.—Lying together. Pollen white.

Style.—Exceeding the stamens in length, and so remarkably ascending as to be removed altogether from the same alignment.

Stigma.—Elevated to almost touch the upper segment of the perianth, capitate without distinct lobation.

I was unable to discern any ovules in the pulpy mass filling the ovaries.

C. Wimbushi differs widely from the pauciflorum of Mr. Baker in the leaves and the number of flowers. The tube is also shorter, and there are other minor differences.

The flowers have individually a resemblance to those of C. longifolium, and, to an extent, the leaves too. Of all the drawings I have seen, the perianth (only) resembles most closely that of the plant figured in *Bot. Mag.*, 1178. I have a good photograph in my manuscripts, taken at Isleworth in 1899.

CRINUM SAMUELI (*sp. nova*).

DESCRIPTION.

This form (several bulbs) came to me from a continental gardener's sale in March, 1901, together with other Central African Crinums. They were called "Crinum species, probably new." This species is of tolerable hardyness, and may be grown satisfactorily as a greenhouse bulb. It has also flowered with me in a protected position out-of-doors, but not so well as under glass. At first the flowers are rather small, but they continue to grow in size and beauty for some days after having first opened. It is in alliance with the species just described, so I only here give the points of divergence therefrom. I have never seen any drawing of Crinum flowers like this species.

Flowers a pair, but not twins. Odourless, sessile, span 4½ inches, each flower lasting quite five days in perfection.

Tubes quite erect in every stage of growth, until flowers expand, when the weight causes a slight inclination.

Leaves, edges scabrous.

Stamens spreading so as to lie almost contiguous to their respective segments in some cases, and spreading to a less extent in others, but never lying together. This wide-spreading tendency (characteristic of another section of the genus), is most noticeable on the first expansion of the flowers.

Anthers grey, pollen, whitish.

Style not ascending to the extent of C. Wimbushi. I again failed to discern any ovules, or to obtain fruit. Propagates by gemmation. Three bulbs flowered with me and were all identical. *A. Worsley, Isleworth.*

HERBACEOUS BORDER.

ASTER AMELLUS VAR. PERRY'S FAVOURITE.

BY far the most noteworthy introduction I have seen amongst perennial Asters for several years, is a variety of A. Amellus I obtained last spring from Winchmore Hill Nursery, which, I think, was named Perry's Favourite. Some years ago I got one named Amellus var. ruber, which I have never ceased to increase, the colour being by no means pleasing, a genuine mauve (that is, the colour of the flower of Malva sylvestris), but the novelty now in flower is a full sized Amellus, with a broad disc, and well furnished with rays which open flat, the colour being clear light rose. It cannot fail to become a favourite with all gardeners, as well as with its raiser. *C. Wolley-Dod, Edge Hall, Malpas.*

The Week's Work.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Winter Carnations.—The houses in which these are growing should be kept well ventilated on every favourable opportunity, and should never be entirely closed. Do not afford water to the plants until it is really necessary, and then afford them sufficient to thoroughly moisten the soil throughout. It is late to write of staking the plants, but I will mention here the method I adopt, and which appears to me the neatest: small bamboo canes (4 feet) are cut into short lengths, so that they do not come above the bushy part of the plant. Care is taken to cut off the top end just below a joint, which leaves a socket into which a length of No. 12 gauge galvanised iron wire is inserted. This forms an excellent support to which the buds and flowers may be slung, and the wire harmonises well with the flower-stems. Place elastic rings over pod-bursting flowers whilst the calyces are still in the bud.

Chrysanthemums.—The plants which are being grown for the production of large blooms will now require considerable care in many ways. At a given date, they should, if they are late-flowering Japanese varieties, be afforded a temperature of 50° to 55°. Dark-coloured flowers sometimes scald under very little bright sunshine, and such should be shaded during the brighter hours of the day. A regular temperature and buoyant air are the best means of lessening the risk of damping, which is very troublesome if nitrate of soda has been applied as an aid to growth. The application of water should take place in the morning, so that any which runs from the pots may be mopped up, and the house rendered dry during sunshine, and all decaying leaves should be removed daily. Incurved varieties do best in an ordinary greenhouse, being injured by artificial heat; and the buds should be allowed to hang naturally, as these open better than when tied erect. Where many cut flowers are required, it is a common thing to find more Chrysanthemums grown than can be accommodated in glass-houses set apart entirely for these plants, and they have to be placed in vineries and peacheries, a treatment the summer this year has ill-prepared them for, and unless they can be placed with their buds almost touching the glass, there will be many defective and weak-stemmed flowers among the late varieties.

Cinerarias.—Late-sown Cinerarias will now be ready for placing in the pots in which they will flower, a mixture of sandy-loam being employed. Great care must be taken of the leaves, which are very fragile and large, and the loss of even one on a plant destroys the symmetry of that plant. After potting, place the plants thinly in the greenhouse or greenhouse-pit, and apply but little artificial heat, even in frosty weather.

Chinese Primulas.—Afford these plants all the light possible during the winter, stage them thinly near to the roof glass, and maintain a fairly dry and buoyant atmosphere. To plants throwing up flower-trusses, ordinary manure-water, and occasionally that made from guano, may be afforded, if it be not strong.

Calceolarias succeed during the winter in cold brick pits, and do not suffer from the shade of mats, &c., in use in frosty weather, unless such weather is much prolonged. If a greenhouse that can be heated is devoted solely to these plants, they are safer; but when grown among a mixed collection of plants, they are very liable to be infested with greenfly.

Solanums.—Plants which have been lifted from the open ground and potted, being now re-established, should be placed in an intermediate-house, and afforded full sunshine, so as to bring on the maturing of the fruits at an early date, these being unusually late this year.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Pot Vines for Forcing.—Strongly-grown, well-ripened, two-year-old canes are best cultivated at this last season in 11-inch pots. Remove 2 or 3 inches of the surface-soil, and top-dress with fresh turfy-loam, and a little of Thomson's Vine-manure. Pot firmly, and place the plants in a cool-house until the end of this month, when they may be plunged in a bed of leaves, having only a mild bottom-heat. The house should have a temperature of 50°.

The Early Vinery.—The pruning of the Vines should not be longer delayed, and in doing this an extra bud or two should be left on each spur. If the spurs are long, as they are apt to be on old Vines, a shoot should be taken from a point near the bottom of the cane to form a rod, which will in a season or two take the place of the old one. In cleaning the Vines, first remove only the loose bark, then wash them well with soap-suds, using a moderately stiff brush; and if insects have been troublesome, dress the canes with XL-All liquid, and thoroughly cleanse the walls, staging, trellises, and pipes, with soapsuds. Finally syringe these parts (not the Vines) with a strong mixture of soapsuds and paraffin. If the woodwork stands in need of a coat of paint, this may be applied at this date. Walls should be painted or limewashed. The border is sure to harbour insects, and the surface should be skimmed and removed, and charred or buried deeply outside. If many of the roots are as they should be, near the surface, simply lay bare these roots, and apply a good sprinkling of Thomson's Vine-manure, some bone-meal, and a 2 inch layer of finely-chopped fresh loam. If the roots lie deep in the border, and the border also deeper than 2½ feet, these matters should have been rectified much earlier in the season, that is as soon as the crop was removed; but as matters will only get worse, the soil should be thrown out, carefully digging out the roots, arranging the drainage materials at about 2½ feet from the surface, covering them with sods grass-side downwards, and returning much of the old

soil if it be sufficiently good, and adding bone-meal and Vine-manure. Make the whole mass tolerably firm as the work proceeds, and near the surface spread fresh turfy loam well mixed with Vine-manure, and spread out the roots in regular fashion thereon at various levels. The outside borders of early vineries should be provided with a covering 2 feet deep of fresh tree-leaves, and the border inside the vinery is also the better for a thinner bed of leaves, particularly those Vines whose roots have been recently disturbed. Let the inside border, if the crop has been cut, be afforded a copious application of the diluted drainings from the cow-house.

Muscat of Alexandria and late Hamburgh Vines.—If ripe fruit is still hanging, maintain a slight degree of warmth in the heating apparatus, but do not let the warmth exceed 50°, doing this on dry days, with ventilation afforded, and in damp weather keep the vinery closed. Allow no plants in the vinery, and cover the inside border with dry hay or straw, and the outside border with shutters or sheets of corrugated iron.

The Latest-fruiting Vines.—Gros Colman and other late varieties of black Grapes will continue to colour and mature for some time longer, and the temperature should be kept at about 55°, higher or lower according to the state of the weather, applying air as constantly as may be advisable.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Broccoli.—Early-planted Broccolis that have made much growth should be given a check by partially lifting them. The best tool for this work is a drainer's graft, raising the plants sufficiently to draw up or snap the strong roots, subsequently firming the soil about them again with the feet. The sudden change from mild weather to severe frost in November last year, when the less hardy kinds of Broccolis were so badly injured, should decide the procrastinating gardener to carry out this work forthwith.

Asparagus.—Where Asparagus is forced in frames on hot-beds, the materials for making the latter should be prepared by throwing together fresh stable-litter three-quarters, and new tree-leaves one-quarter, turning it over twice previous to making use of it. A more gentle and lasting heat can be obtained by using equal parts stable-dung and leaves, these being those of the Oak, Beech, or Sweet Chestnut. When the bed is made, and the frame placed on it, put in a thick layer of leaf-mould of from two to three years old; and this sort of leaf-mould will also answer for covering the roots in the event of having no store of sandy soil. In some gardens forcing-pits exist which answer the same purpose as frames on hot-beds. The roots should be trenched in a regular manner, and the clumps taken up with as little injury to the roots as possible. The land may be manured at the same time.

Celery.—Continue the earthing-up in favourable weather, when the plants are in a dry state, banking up being carried out then or later. The latest rows should be well banked up to the tips of the heart-leaves.

French Beans.—Future supplies will be obtained from plants grown under glass, and from the present time till the end of the year is the most critical season. Maintain a dry, mean warm temperature of 60° when the plants are in flower, and 5° to 10° more afterwards with greater humidity, and if pots are employed afford once a week a small quantity of manure. Gather the beans when almost fully grown, whether they are required for immediate consumption or not, or they will get stringy. They may be kept for several days if stood upright in jars with ¾ an inch of water at the bottom.

Brussels Sprouts.—In gathering the forwardest use a knife, and the second crop of small Sprouts will be fit for use at a most acceptable time.

Lettuce and Endive.—All varieties of curled Endive should now be placed under protection, except those which have been tied up to blanch for present use, which protect with inverted flower-pots. If transplanted to an orchard-house, do not cover them after receiving water till the leaves have got dry. A batch of plants should be tied up, or, if required quickly, put them in the Mushroom-house. Bath Cos Lettuce should be made safe from frost by placing them in cold vineries, and blanch in batches, so as to keep up the supply. Tom Thumb varieties may be similarly treated, but they are nicer if planted on a warm border, where a skeleton frame can be placed over them to carry some frame-lights.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Budleigh, Devonshire.

Raspberries.—It is unnecessary to defer transplanting home-grown Raspberry plants till the leaves have fallen; on the other hand, if they have to be bought at a nursery situated at some distance from the garden, it is best to delay the work for two or three weeks. As the Raspberry requires a rich soil, the ground should be trenched 2 feet deep, and a liberal quantity of half decayed farmyard or stable manure placed at the bottom of the trenches, and between the upper and lower spits; in heavy soils, leaf-mould, wood-ashes, and the rougher part of the rubbish-heap, may be laid in the bottom or incorporated with the soil. On shallow soils, partial shade is of much benefit to the Raspberry, but there is no doubt that far better results are obtained from canes planted in open quarters where the soil is of good depth, as here the canes get well ripened, and are enabled to withstand frost without injury. As regards planting, rows running north and south 5 to 6 feet apart, and the clumps about 2 feet asunder in the rows, is as good as any. The canes may be tied to wires 2½ feet apart strained from strong posts, the uppermost wire being fixed at 5 ft. from the ground. In planting, spread out the roots in the hole, make the soil firm about them, and secure each cane temporarily to the wires, topping the canes by a few inches if unduly long, but deferring the final pruning until the month of February. Among reds, Superlative takes the lead in cropping capabilities and good quality; Carter's Prolific, Baumforth's Seedling, and Norwich Wonder are likewise of good quality. Of yellows, The Guinea, Yellow Antwerp, and Magnum Bonum are an excellent trio. Belle de Fontenay and Red and Yellow Four Seasons are the best autumn-fruiting varieties. New plantations should be mulched with strawy litter when winter has really set in.

The Medlar.—The trees carry a very thin crop at Bicton this year. The early days of November are the usual gathering time for this fruit, but the gardener will be guided a bit by the weather, for the autumnal gales often blow down the finest fruit, and bruised fruits soon decay. Gather the fruit on a dry day, spreading it out thinly on a shelf in the fruit-room, keeping the eye downwards so that the stalk-end of the fruit may be quickly observed, as it is here they generally go first. For making jelly, the fruit should be quite ripe, and should be fit for this three or four weeks after being gathered.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Lælia crispilabia (*syn. Lawrenceana*).—The new growths are now about half developed, and fresh roots being formed, a suitable time to remove spent soured surface material or repot the plants, as the case may demand. To grow the species well, pot it in a compost consisting of equal parts of the fibrous parts of Orchid-peat and sphagnum; afford plenty of drainage, make use of Orchid-pans, and suspend these in the intermediate-house along with the Mexican Lælias. See that strong sunshine reaches the plants. When the roots are active apply water before the compost gets very dry, and at other seasons afford but little.

L. longipes (*syn. Lucasiana*).—This plant, now passing out of flower, should be given a thorough rest, just enough water being applied as will keep the pseudo-bulbs from shrivelling. A similar position with the foregoing will be a suitable one.

L. monophylla, a beautiful miniature plant now in flower at Gatton, is one of the most pleasing of the small-growing varieties of Lælias, and it should provide promising material for the cross-breeder. After flowering, the plant needs very little moisture, and it may be accommodated during the winter in a cool intermediate-house.

L. harpophylla, now developing its growths, if well rooted should not be allowed to get too dry before water is applied if many crocks and a thin layer of peat and sphagnum have been used; but when the compost used contains a certain proportion of leaf-mould, and there is not much drainage, frequent dampings between the pots, and slight damping of the surface material suffice, as more than this would sour, and sodden the compost. A sunny position in the intermediate-house should be allotted to this plant.

L. Perrini.—Plants now in flower may be repotted, or have the surface covering renewed, whichever is most needed, but not disturbing the plants, before the new roots have become visible at the base of the new pseudo-bulbs, and generally these form soon after flowering. L. Perrini should be treated on the same lines as Cattleya gigas, although when making roots a very small quantity of water should be afforded, otherwise the new roots may decay, or the plant starts into growth before it has had a proper rest season. Place it along with Cattleya gigas for the winter months.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Begonias will now have ceased to grow and flower, being in some gardens checked by frost. The stems should be freed of decaying leaves, the tubers lifted and shaken out of the soil, and put into boxes half-filled with cocoanut-fibre refuse, and kept dry in a cool light house from which frost is excluded. As soon as they are dried off, in order to economise space, take them out of the fibre, and store in the seed-room until required for restarting next spring.

Cannas should be lifted and taken indoors, and where they have been simply plunged out-of-doors in their pots, remove them to an orchard-house or other such cool house, and afford as much water throughout the winter as will prevent the shrinking of the newly-formed crowns, or too rapid shrivelling of the stems and leaves. Cannas that have been grown in the beds should be dug round, lifted out of the ground, placed close together in boxes or pots with leaf-soil and sand put between them, treated as described above, and be frequently sprayed in order to keep the foliage from withering too quickly.

Dahlias.—As soon as the tops are destroyed by frost, cut down the stems to within 1 foot of the soil, and afterwards lift the roots, free the roots from soil, attach a label to each, and place them on the floor of a light, cool, and quite dry house for a week or two, afterwards storing them in the root-store for the winter.

General Work.—All kinds of biennial plants that are young, and therefore tender, should be planted in their winter quarters as quickly as possible, so that they may become re-established before very cold weather sets in. Should sharp frost occur at planting-time, the more tender varieties should have some Fir branches stuck into the ground slantingly over the plants, in which position they may remain for a week or more, thus serving the double purpose of shade from bright sunshine, and protection against frost and wind. Sweep the lawn daily if there are many deciduous trees planted on or about it, and keep it as clean and tidy as possible, worm-casts being swept up, and the roller used almost daily. The last mowing for the season may now be carried out, and if the turf be very springy or soft, it is much better to make use of the small hand-machine than the horse-mower, which is so heavy, and sometimes disfigures the turf, especially at the turning-points, and the horse's hoofs make indentations in the turf. Sweep and roll gravel-paths as often as may be necessary.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

Special Notice to Correspondents.—*The Editor does not undertake to pay for any contributions or illustrations, or to return the unused communications or illustrations, unless by special arrangement.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	OCT. 27	National Chrysanthemum Society, Floral Committee Meet.
TUESDAY,	OCT. 28	Croydon Chrysanthemum Society Show (2 days).
WEDNESDAY,	OCT. 29	Fruit and Chrysanthemum Show in Jersey. Kent County Chrysanthemum and Horticultural Society Show (2 days). Highgate Chrysanthemum Society Show in Alexandra Palace (3 days).

SALES FOR THE WEEK.

MONDAY to FRIDAY, OCT. 27 to 31—
Dutch Bulbs, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 11 o'clock.

MONDAY, OCTOBER 27—
Bulbs, Roses, &c., at Pollexfen's Rooms.—Bulbs and Rhododendrons at Stevens' Rooms at 12.30.—Sale of Nursery Stock, at The Hampshire House Nursery, Hampshire Hog Lane, Hammersmith, by order of Mr. T. P. Turner, by Protheroe & Morris, at 12.30.

TUESDAY, OCTOBER 28—
Palms, Shrubs, Roses, and Bulbs, at Pollexfen & Co.'s Rooms.

WEDNESDAY, OCTOBER 29—
Bulbs and Roses at Pollexfen & Co.'s Rooms.—Bulbs, Azaleas, Palms, at Stevens' Rooms at 12.30—Azaleas, Rhododendrons, Lilium Harrisii, Lily of the Valley, &c., at 67 and 68, Cheapside, by Protheroe & Morris, at 5.—Clearance Sale of Nursery Stock, at the Nurseries, Windlesham, near Bagshot, Surrey, by order of Mr. J. Mason, by Protheroe & Morris, at 12 o'clock.

THURSDAY, OCTOBER 30.—
Palms, Roses, Shrubs, and Bulbs, at Pollexfen & Co.'s Rooms

THURSDAY and FRIDAY, OCTOBER 30 and 31—
Twenty-eighth Annual Sale of Nursery Stock, at Hollamby's Nurseries, Groombridge, Tunbridge Wells, by Protheroe & Morris, at 12.

FRIDAY, OCTOBER 31—
Bulbs and Roses at Pollexfen's Rooms.—Orchids in great variety, at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.—Collection of Orchids, in the Coal Exchange, Market Place, Manchester, by Mr. John Cowan, at 12.30 prompt.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick—45·4°.

ACTUAL TEMPERATURES:—

LONDON.—*October* 22 (6 P.M.): Max. 56°; Min. 45°.
October 23.—Dull, cool.

PROVINCES.—*October* 22 (6 P.M.): Max. 57°, W. Ireland; Min. 42°, N.E. Scotland.

Street Planting.

Now that extensive preparations have been made for the construction of what promise to be magnificent new streets in the centre of the metropolis, it is time to think of what shall be done to enhance their amenity and wholesomeness by the planting of trees. In our short summers, trees and seats under them are a welcome relief from the dust and heat and grey monotony of our streets. Drinking fountains, and benches whereon the weary labourer may rest his burden, are also necessities which it is to be hoped our municipal authorities will not overlook. So far as trees and planting are concerned, there are several points worth considering.

First of all, as to the kind of tree to be planted. No doubt, taken for all in all, the so-called London Plane (Platanus acerifolia) is the best; but then it is a forest tree capable of attaining dimensions ill adapted for planting in narrow thoroughfares, unless subject to periodical mutilation, as in the trees on the Embankment. These should have been thinned out long ago, so as to avoid the necessity for the work of trimming and regulating, now carried out more or less unsatisfactorily. There are numbers of trees, such as Maples of kinds, Poplars, Naples Alder, Oaks, Ailanthus, Robinias, Mountain Ash, deciduous Magnolias, species of Pyrus, and many others, enumerated in a paper in the *Journal of the Royal Horticultural Society* by the present writer after the observations of many years, which will thrive nearly, or quite as well as the monotonous Plane, and many of which, being of more modest dimensions, are more suitable for narrow thoroughfares than it. We do not care to do more than mention the Maidenhair-tree (Ginkgo biloba), for in spite of its hardihood and power of resistance to smoke, it does not, nor is it likely to, exist in sufficient quantities to be used unless exceptionally. The "man in the street," moreover, is not likely to be impressed by the singularly interesting history of the tree; ordinary Conifers are, for the most part, out of the question; Limes get smothered with insects, and the same objection may be raised to Thorns. A visit to the arboretum at Kew would suggest scores of appropriate trees, and unfortunately in some respects, the impurity of the air at Kew is becoming not unlike that of more densely-crowded neighbourhoods.

In the case of the older streets there is a bewildering labyrinth of sewers, railways, "tubes," water-pipes, gas-pipes, pneumatic tubes, telegraph wires, telephone circuits, and we know not what else, which render the introduction of trees always difficult and frequently impossible. In the broad, new thoroughfares in course of construction, there is room for the formation either of a central belt or of rows of trees on either side, which may be so arranged as not to interfere with the network of pipes and wires. The unhappy trees would then not be poisoned by the escape of gas, nor be subject to injury every time the road "is up," which as Londoners know to their cost, is the case in the aggregate for at least six months out of the twelve. Neither would their tender rootlets be crushed, as they not infrequently are now by the steam-roller. This was so in a case submitted for our diagnosis some years since in one of the suburbs of London, where the trees, though properly planted, were dying mysteriously. Even in some of the older streets it would seem as if some effort might be made in tree-planting, for instance, in Portland Place, one of the widest streets in London, and one in which the traffic is not exceptionally heavy. We do not know the dimensions of this street, but it looks wide enough for a central single line of trees—if not for an avenue with a path, and seats for the benefit of foot passengers. What an enormous improvement such a line of trees would be in that situation is patent to everyone who knows it, and yet we are told that the municipal authorities have more than once negatived the proposals made by Lord MEATH for the decoration and sanitary improvement of this thoroughfare.

In many continental cities, and even villages, a kind of covered way or pergola is formed by training the branches horizontally to form a roof, and afford shelter alike from the sun and the rain. Of course, to effect this, the trees are mutilated and distorted, so that they are not so pleasant to look on in winter-time; but in summer, when their aid is most wanted, there is nothing to be said against, but much in favour of their appearance. Is it a mere dream that we can have such covered ways not only in Portland Place, but in scores of similar localities in our great towns?

The very few trees in the Strand, as it now exists, have had a sorry time of it of late years. Some beneficent person or corporation planted trees around the churches of St. Mary and St. Clement; but no sooner had they began to make their presence felt, and indicate their future amenity, when successive Jubilee celebrations caused their amputation or entire removal for the erection of stands to "view the procession." The same fate befell those around Westminster Abbey and St. Margaret's Church.

Now we find preparations being made for the planting of trees by the Law Courts, where there is already ample space. Here, as everywhere, we find the grating intended to secure access of air and water to the roots, placed just where it is least wanted, that is, immediately around the base of the trunk of the tree.

Every gardener, and many School Board pupils, know that the feeding-roots which absorb the air and water necessary for existence are many feet away from these gratings, often under hard, impervious paving or roadway, where it is a matter for surprise that they can obtain their requirements.

But the power of adaptation to circumstances is very marked in plants, and we find them thriving under conditions where, theoretically speaking, they ought to die forthwith. We know a sturdy, well-formed tree in a suburban street which for forty and perhaps more years has lived with the pavement close up around the base of the trunk, whilst its feeding roots must be beneath what seems a hard impervious roadway. How the roots obtain their moisture is a mystery. Wherever possible, the trees should be planted in narrow beds with the surface of the bed freely exposed, or covered with a wide netted grating extending from tree to tree, and not placed merely around the base of each.

Another point not sufficiently borne in mind, or acted on, is that the trees require, not only to be carefully selected and carefully planted, but to be protected from subsequent injury, and to be subjected to occasional intelligent supervision and regulation. All this care entails some cost, but it is outlay that is well repaid in the increased comfort and well-being of the citizens, and in the improved appearance of the city.

PHALÆNOPSIS AMABILIS VAR. RIMESTADTIANA (see Supplementary Illustration).—The beauties and good qualities of this very fine new form of the plant known in gardens as Phalænopsis grandiflora, have been noted in these columns on several occasions, and now, by the kindness of M. THÉODORE PAUWELS, of Mierelbeke, Ghent, we are

Phalænopsis amabilis var. Rimestadtiana.

enabled to give a view of the Orchid garden of M. Rimestadt, its discoverer, at his home in Java. The plant grows, it is said, at a greater elevation than any other species of Phalænopsis, and hence it is believed that it will, judging from its free-growing habit, and the freedom with which it produces its large white flowers, take its place in gardens as a decorative subject, and as a plant to be grown in quantity for cut flowers, the value of which, as they are generally produced in winter and spring, cannot well be overrated. All who know these Javan Phalænopsids in their native habitat agree that their frequent failure in gardens may be attributed to their being kept too warm and close under cultivation. A note accompanying the plate of P. amabilis Rimestadtiana in *Lindenia*, vol. xvi., contains much information on this point collected by Messrs. Linden, the original importers of the plant, by whom also the suggestion is made that, under cultivation, the Odontoglossum-house would suit the plant best. Possibly that method of culture would answer in summer, although in winter it would not probably be satisfactory. Phalænopsis amabilis Rimestadtiana is brought forward as a plant likely to prove a rival to Odontoglossum crispum in public favour, and if its culture prove as easy as it is supposed to be, this is not unlikely, especially as its fine and durable flowers are available when those of Odontoglossum crispum are not obtainable. The illustration shows that Mr. Rimestadt cultivates very successfully other kinds of Orchids, but the Phalænopsis is his favourite flower. In its cultivation an even temperature all the year rather than a high temperature is the object to be aimed at, and to grow the plants on blocks or rafts, as shown in the illustration, instead of in baskets or pots, as they are generally grown in gardens, would be worth trying.

Royal Support of the New Hall Scheme.—At the meeting of Fellows of the Royal Horticultural Society, on Tuesday afternoon last, the Rev. W. Wilks, M.A. (Secretary), read the King's letter, which was published in these pages last week, and in which his Majesty graciously gave a sum of 100 guineas to the Society's "Hall" scheme. A letter from the Prince of Wales was also read, in which his Royal Highness expressed his approval of the Society's scheme, and tendered a contribution of 50 guineas. The Secretary proceeded to say that Mr. Leopold de Rothschild had that day presented the Society with a cheque for 500 guineas. He (the Secretary) was sure all the Fellows felt grateful for the handsome encouragement the Society had received from the highest sources, and would feel also that the scheme would succeed. At the same time he hoped that Fellows who, like himself, are able only to offer small amounts, would not be backward in presenting those small amounts, so that when the Hall was finished, each might have the satisfaction of knowing that he had contributed something to its cost. That day (Tuesday) he believed they would pass a record in the Society's history. When they had elected the list of twenty-six new Fellows, that would be placed before that meeting, the Society's list of new Fellows elected during the present year would amount to 1,005. He felt sure that in no previous year of the Society's history had there been elected, in one year, so many as 1,000 new Fellows. Altogether, the prospects are very encouraging, and lead us to hope that British horticulture may at length have headquarters of dimensions and convenience, adequate to the constantly increasing importance of the craft.

The Royal Horticultural Society.—The increase in the number of Fellows continues to be very satisfactory. Up to October 21, as above-mentioned, the number of new Fellows elected during the year amounted to no fewer than 1005. Last year, at the corresponding date, 830 Fellows had been admitted. The President, who has stuck to the Society through its evil days, till it has emerged into a condition of prosperity, is to be warmly congratulated on the changed conditions; whilst the quiet energy of the Secretary, Rev. W. Wilks, demands the cordial acknowledgment of those interested in the Society.

The Melon Leaf-blotch.—Experiments made in America show that the disease may be prevented or checked by the use of Bordeaux Mixture in the form of spray.

Chrysanthemum Show Schedules to Hand.—*The Putney, Wandsworth, and District Chrysanthemum Society* will hold its exhibition on Wednesday and Thursday, Nov. 12 and 13, in the Town Hall, Wandsworth; Secretary, Mr. W. J. Reynolds, Elizabethan Place, Roehampton, S.W. — *The Eccles, Pendleton, and District* Chrysanthemum Show will be held in the Town Hall, Eccles, on November 14 and 15; Secretary, J. H. Bryan, 134, New Lane, Peel Green.

An Excellent Tomato.—We have received fruits of a Tomato from Mr. Wm. Bunn, seedsman, of Colwall, near Malvern. They are of the best form seen in the "Perfection" type, almost as round as a ball, of moderate size, weighing 4 oz. each; skin unusually smooth, and of intense colour; flesh solid, each fruit containing only a few seeds. Our correspondent describes its cropping qualities as prodigious. We are able to speak of the gathered fruits, which are excellent. The variety is known as Bunn's Superlative, and it is said to have been awarded a a Certificate of Merit at the Shrewsbury show in August last.

"The Silva of North America."—The publication of volumes xiii. and xiv. of Sargent's *Silva of North America* completes this exhaustive and monumental work, which has been twelve years in preparation. The illustrations comprise 750 plates, engraved in Paris from drawings by C. E. Faxon, and adequately represent 567 different species of American trees north of Mexico, recognised by botanists. The last volume contains an Index to the entire fourteen volumes.

"The Royal Borough of Kingston-upon-Thames."—This is a recent addition (No. 24) to the well-known series of Homeland Handbooks, published from 24, Bride Lane, Fleet Street, E.C. It is written by Dr. W. E. St. L. Finny, and plentifully illustrated from photographs and drawings. Chapters are devoted to the parish church, the Coronation-stone, Richmond Park, Kingston as a boating and angling resort, Hampton Court, Ham, the Dittons, and Esher. Included in the book is an ordnance survey map on the 1-inch scale. Needless, therefore, to add that the volume is interesting to visitors and others connection with the town, and its appearance in Coronation year seems appropriate with its former associations with royalty.

Planting Trees at Rhayader.—We learn that the extensive tree-planting near Rhayader, South Wales, in connection with the Birmingham new Water Supply Works, has been entrusted to the firm of Messrs. Dicksons, Chester.

"Illustrated Scientific News."—This is the title of a new periodical to be issued monthly, at the cost of 6*d*. It is 15 by 10½ inches in size, well printed on good paper. The contents are interesting, varied, and not too profound. Numerous illustrations are given, including a large portrait of Sir William Huggins, the President of the Royal Society. Under the head of "Preservation of Flowers," the old method of drying them in sand is described, but, unless in certain special cases, this is not of much practical value. The paper is published by Horace Marshall & Son, Temple Avenue, London, E.C.

The Tamarisk.—This elegant shrub is planted in some parts of the coast of N. S. Wales to resist the encroachments of the sand, together with Marram and other sand-grasses. The plants grow well, and effect their purpose.

Hastings, St. Leonards and District Horticultural Mutual Improvement Society.—We learn from Mr. H. S. Stevens, Honorary Secretary, that Mr. J. Stredwick, the noted Dahlia raiser and grower, lectured before the Society on Thursday last on the Cactus Dahlia, illustrated by lantern slides of a particularly interesting and instructive character.

The Country Gentlemen's Club.—The above Club is being inaugurated by the Country Gentlemen's Association, and aims at providing a national centre in London, specially devoted to the landed interest; providing comfortable, home-like premises, and possibly sleeping accommodation; rooms for meetings to discuss questions affecting the land; an extensive estate library, a file of the best provincial papers (an unique feature), and many other advantages. The subscription to country members is £3 3*s*., and town members £5 5*s*., off which there is a rebate of £1 1*s*. to members of the Royal Agricultural and other kindred Societies. An entrance fee of £5 5*s*. will be charged after the first thousand members. The Hon. Secretary is Mr. W. Broomhall, 16, Cockspur Street, Pall Mall, S.W., from whom further particulars may be obtained.

Queensland Fruit.—Not many years have passed since mutton and danper—danper and mutton—formed the principal articles of diet in Australia; but to-day this state of things no longer holds good, and our colonial friends draw upon as many sources of food supply as we do. Fruit was early added to the *menu* of the colonial, imported from various quarters, and quickly the fruit-grower found his way into the market, gradually ousting the exotic product; to-day home-grown fruit forms a large item in the export trade, and it is now to Queensland that one draws attention. The returns just issued by the Brisbane Board of Trade inform us that the value of the exports of green fruit for the first half of the present year is exactly £58,526, as against £37,054 for the same period last year—an increase of £21,472.

Rhododendron Duchess of Portland.—Messrs. Fisher, Son, & Sibray send us a specimen of a new greenhouse Rhododendron raised by them from a good variety of R. jasminiflorum crossed with Princess Royal. The truss bears numerous flowers, each with a long slender tube, 1½ in. long, surrounded by a five-lobed pink limb of about an inch in diameter. The leathery leaves are obovate-oblong, tapering to the base, about 2¼ inches long by 1 inch in greater breadth. If the plant is of good habit it will form an acceptable addition to this deservedly popular group.

Publications Received.—*Cassell's Dictionary of Gardening.* This, the 17th Part, contains articles Rose (continued) to Siegesbeckia.—From the Imperial Department of Agriculture for the West Indies: Pamphlet Series No. 18, *Recipes for Cooking West Indian Yams*; and No. 17, *The General Treatment of Fungoid Pests*, by Albert Howard, B.A.—*Toogood's Culture of Vegetables*, by E. Kemp Toogood (Toogood & Sons, Seedsmen, Southampton).—*Report on Natal Botanic Gardens and Colonial Herbarium*, from July 1, 1901, to June 30, 1902, by J. Medley Wood. "A very favourable season; the rains have been frequent and copious, and the summer a cool one. . . . The new Herbarium building is intended to contain not only collections of dried plants, but also to be the foundation of a Botanic Museum." Appropriate contributions are asked from those willing to assist.

INTERNATIONAL CONFERENCE ON PLANT BREEDING.

Our reports of this important meeting held in New York, on September 30, October 1 and 2, have not yet come to hand. We have therefore taken some extracts from the *Florist's Exchange*, of New York, and trust in our next issue to supply an account of the remainder of the proceedings from our own correspondent:—

The conference was held under the auspices of the Horticultural Society of New York. Among those present were Mr. W. Bateson, Cambridge, England; George Nicholson, late of Kew, England; and Dr. Morris, West Indies.

Mr. W. Bateson, of Cambridge University, England, was the first speaker. His theme was, "The Practical Aspects of the New Discoveries in Heredity." His remarks dealt principally with an elucidation and exposition of Mendel's principles, as already detailed in our columns.

A paper, entitled "Notes on New Hybrids," by Professor Wilson, of St. Andrew's University, Scotland, was taken as read.

The paper of C. C. Hurst was also an exposition of Mendel's principles. The breeder will find it essential to select parents for the right crosses, which possess characters that are at once single and constant, and differential and dominant. He must also take care to raise large numbers of individuals for observation and comparison. By these methods alone will definite results be obtained.

Professor Spillman, of Washington, remarked that it was possible to fix the type of any hybrid, that obeys Mendel's law, in the third generation.

Mr. Burbidge's paper upon "Selection *versus* Hybridism" was taken as read; and Dr. MacDougall, of the Botanical Garden, New York, read extracts from the paper of Professor de Vries, of Amsterdam, dealing with "Artificial Atavism."

The paper of Herr Max Leichtlin, of Baden-Baden, was read by Secretary Barron; its title was "Some Conclusions." Among other things, Herr Leichtlin said it was necessary to have a suitable time in which to take plants for seeding purposes. A comparatively warm day, after a rain, is best for about six-tenths of plants. Others require a very dry atmosphere, according to their native habitat. No fertilisation should be attempted before the stigma is ready—a condition which after some practice is easily recognised. The pollen to be used must be examined with the aid of a magnifying glass, and must be chosen neither too fresh nor over-ripe. After fertilisation it is well, in many cases, to put a hand-glass over the flower fertilised, to furnish for a day or two a higher temperature than that of the surrounding air.

Pollen, if gathered in good condition, can be kept in small glass vessels, corked well, for several days without losing its fertilising power.

Some genera of plants are shy seed-bearers, for instance, Caryophyllaceæ, because the pollen of the flower is ripe long before the stigma is developed.

As a rule, in eight cases out of ten, the female parent has the greatest influence on the forms of the offspring; the male gives the colour. In the majority of cases the offspring have larger flowers than both parents. Hybrids are and will remain unfertile.

Whether or not fertilisation is possible can be ascertained at once by examining the form of the pollen grains under a microscope. If the form is nearly alike it will do; if the form is very different, no fertilisation is possible.

A discussion ensued on the variability of pollen grains, and the possibility of their shipment from one place to another. Mr. Ward stated that Carnation pollen would not keep, wrapped in paper; but placed in a vial it kept a reasonable length of time. Others had shipped pollen, perfectly dried, in pasteboard boxes. Dr. Morris said he shipped pollen to different stations in the West Indies; the grains were dried in the sun, and placed between two pieces of blotting-paper, which was inserted in an ordinary cardboard box.

A short paper by Mr. Lynch, Curator of the Botanic Garden at Cambridge, England, making some suggestions for the classification of hybrids, was read by the secretary. He submitted the following classification:—Bigeneric hybrids, fertile and true from seed: bigeneric hybrids, unfertile; hybrids that come true from seed never reverting; hybrids that are more fertile than either parent; hybrids which return after a generation or two to the parent species; wild hybrids which take the position of either parent, and are equal to species.

Common usage having departed from the restrictive meaning of the word "hybrid," as signifying the result of a cross between two species, and applied it as well to the product of crossing two varieties, it was thought some confusion would result from the use of the term, and a committee consisting of C. B. Watrous, Professors Bailey and Hansen, Dr. Britton and Mr. Groff, was appointed by the Chair to submit to the Conference a suggested classification.

It was also recommended that the Department of Agriculture at Washington maintain a bureau of statistics where records be kept of experimental work in plant-breeding throughout the country. This, it was believed, would obviate repetitions of work already done, and save trouble and expense.

The word "sport" having been used at various times during the proceedings, Dr. Morris desired to know if the term was generally accepted to mean a bud variation—a definition attaching to the word in the old country. It was stated that no effort was made here to confine "sport" to signifying a bud-variation; that any individual showing characteristics widely different from the type, obtained through bud-variation or from seed, was called a sport, there being bud-sports and seed-sports.

(To be continued.)

IRELAND.

THE EDUCATIONAL FRUIT SHOW AT CORK.

The exhibition, mainly confined to Irish-grown fruit and fruit products, held in the Great Concert Hall of the Cork Exhibition, on October 15, 16, and 17, was a really fine object-lesson as to what is possible in hardy fruit culture, and more especially in the case of the best of Apples on the Irish soil. Notwithstanding the observation of Geraldus Cambrensis, who long ago said that the Emerald Isle was a green and leafy land, and more fitted for pasturage than for corn and fruit, it has in the past, as in the present, been famed for its fruits as well as for its foliage and flowers.

The early settlers, both English and Huguenots, brought trade and commerce and horticulture in their wake, and Irish Apples and cider were formerly much grown and made in various parts of the island where they settled down. In Wexford and the Blackwater Valley, as elsewhere, the finest of cider was made, and there now seem signs, potent and varied, as to the industry being resuscitated. There has long been a most successful colony of small fruit-growers at Gormanstown, near Balbriggan, and the rapid increase of Apple and Strawberry-growers around Armagh has, during the last ten years or so, been phenomenal; but we were scarcely prepared for the extensive display of fine fruit that was shown at Cork on the dates named. The show was organised by the Department of Agriculture and Technical Education in Ireland, and although the prizes offered were small, i.e., less than £100 in all, the results were all that even the Department, or the most sanguine believer in fruit-culture in Ireland, could have desired. Prizes were offered, not only for the best of Apples, Pears, Grapes, and other home-grown produce, but also for the best methods of packing fruit for market, and for the best preserved garden produce as put up for sale.

The great attraction was the quantity and the splendid quality of the Apples shown. In size, shape, and in colour they were alike remarkable. "Ah, sure they're not Apples at all, they're wax!" said one enthusiastic admirer, who is henceforth sure to grow Apples, even if he does not do so already. Another point in the show was the preponderance of the best varieties; the standard of culture was a high one, and the rubbishy kinds were if not entirely absent, so far in the minority as not to be noticeable.

The best dessert Apples were Lady Sudeley, Worcester Pearmain, splendid in size, form, and colouring; King of the Pippins, James Grieve, Cox's Orange, Ribston, Blenheim, and Allington Pippins, of which (if we except Blenheim) the aforesaid remarks are true. The best kitchen or cooking Apples were Lord Suffield, Lord Grosvenor, Gold Medal or Grenadier, Lord Derby, Warner's King, Peasgood's Nonsuch, Royal Jubilee, The Queen, Bismarck, Lane's Prince Albert, Bramley Seedling, and Newton Wonder. Pears were fairly good, but by no means equal to the Apples, either in quality or in the quantity shown.

As we have said, the Apples struck the strong note, and showed very conclusively that Ireland may really grow all the Apples she requires at home, even if she does not compete with America in England as well. Collections of Apples from Cork, the valley of the Blackwater, and from the dry warm limestone of co. Clare, were remarkable for good form and colour. There was, as we have said, good colour and delicate texture apparent everywhere, but bright red as were the Worcester Pearmain, and several other kinds, the highest coloured Apple in the show was one named Scarlet Custard, which glowed from a distance like a basket of Tomatos. If this Apple is anything like a good cropper, and is as good as it looks, it ought to become a favourite for market work. Munster Pippin is another very showy fruit. Of course, it was too late for Scarlet Crofton and Irish Peach, but there was one good dish of the delicious little Golden Kerry Pippin and Gibbons' Russet, nicknamed the "Blackguard's Apple," because its flavour and juiciness are so good that it is generally stolen! Ecklinville Seedling, and several other local Irish-raised Apples, were also shown.

Whenever another educational fruit show is again held in Ireland, it might be advisable to make a special exhibit of Irish seedling Apples.

In the nurserymen's class for the best general exhibits of hardy fruit, Messrs. Hugh Dickson were 1st; Messrs. S. McGreedy & Sons 2nd, and Messrs. M. Saunders & Son were 3rd.

For the best general exhibition of hardy fruit, open to all nurserymen, Messrs. Alex. Dickson & Sons, of Newtownards, were 1st, with splendid specimens, Messrs. M. Saunders & Son, of Cork, being a good 2nd.

A Conference of fruit-growers and visitors was held on October 16, Mr. T. P. Gill, Secretary of the Department of Agriculture, being in the Chair. A capital paper on "Apple-growing for Profit" was read by Mr. F. W. Moore, V.M.H., of Glasnevin. Mr. John Palvin, of Roscommon, read a paper on "The Prospects of Fruit-growing in Connaught." Mr. W. R. Orr read a paper on "The Progress of Fruit-growing in Ireland," and held out reasons why fruit-growing had paid able growers already, and was likely to become even more profitable in the future. Mr. W. L. Cole had a paper on "The Marketing of Irish Fruit," and being himself a well-known market salesman in Dublin, his advice was listened to very attentively by the growers present. Mr. James Harpur, fruit and vegetable preserving expert of the Department, read an interesting paper on "The Methods of Dealing with Second Grade Fruits and Vegetables, with an appreciation of the value of the same as Articles of Dietary." The discussion was short, being limited by time, and really added but little to the value of the papers read. Many no doubt will look forward to these being published in one of the pamphlets or bulletins of the Department ere long.

In conclusion, we may say that there is a fruit-growing spirit abroad in Ireland at the present time, and it was this glow in the blood, so to speak, which brought forth such a splendid exhibition, rather than the miserable amount offered in prizes and awards. It was interesting to note that in Section IX., the prizes offered for the best display of goods manufactured from fruit, Messrs. Chapman & Co., Ltd., were 1st; Messrs. Lamb Bros., 2nd; and the Irish Agricultural Wholesale Society, Ltd., were 3rd.

Much interest was naturally taken by practical growers in the packing competition, viz., for the best and neatest display of Irish-grown fruit, exhibited in the packages recommended by the Irish Agricultural and Technical Department, and arranged in a space of 3 feet by 4 feet. In this class Mr. W. L. Cleburne was 1st, and Mr. John Henerty 2nd.

Mr. J. F. Williamson, writing to the *Irish Times* on Monday, the 20th, contrasts the Cork Show with that recently held at the Crystal Palace, under the auspices of the Royal Horticultural Society of London. The two cases are, however, quite different. Bad a season as it may have been for hardy fruit crops in Ireland, it has been a far worse one in England; and even were it not so, these comparisons are really of no practical value. It is interesting, however, to see the number of entries for Apples at the two great fruit shows held during the present autumn:—

"The first numbers are the entries at Cork, and the last the corresponding ones at the Crystal Palace:—

Dessert Varieties.			Cooking Varieties.		
Lady Sudeley...	... 9	5	Lord Suffield or Lord Grosvenor ...	... 25	7
Worcester Pearmain	23	10	Gold Medal or Grenadier ...	... 14	3
King of the Pippins	32	6	Lord Derby ...	... 21	2
James Grieve...	... 4	2	Warner's King ...	30	4
Cox's Orange Pippin	26	4	Peasgood's Nonsuch	35	3
Ribston Pippin	... 19	7	Royal Jubilee...	... 6	3
Blenheim Pippin	... 27	0	The Queen ...	... 21	4
Allington Pippin	... 7	3	Bismarck ...	... 20	4
Any other variety	... 53	7	Lane's Prince Albert	34	6
			Bramley's Seedling...	38	2
			Newton Wonder	... 6	8
Total ...	... 200—44		Total ...	... 240—45	

"No return of the 'any other variety of cooking Apples' is given in the report of the Crystal Palace Show from which I quote (*The Gardeners' Magazine*), but the number of entries at Cork was no less than 76, making a grand total of 316 dishes of cooking Apples.

"In fairness to the Royal Horticultural Society, it must be remembered that their Show was held very nearly four weeks earlier than ours, but when every possible allowance is made, I think I have fairly proved the extreme all-round excellence of the Cork Fruit Show of 1902. *J. F. Williamson, Summer Hill, Mallow, October* 17, 1902." *Irish Times, October* 20, 1902.

In conclusion, I should like, as an Englishman who has lived nearly a quarter of a century in Ireland, to say how highly satisfactory it is to myself, and all true gardeners, to see this new awakening to the intelligent growth of the best hardy fruits and vegetables in Ireland. In Dublin, I believe, fruits and vegetables are dearer in the shops than in any other city, and both markets and shops are very often filled with imported, rather than with home-grown produce. If we could obtain produce like that shown in Cork in quantity, and at the same prices at which it sells in London, Birmingham, Manchester, or Leeds, there would be but little for either growers, salesmen, shop-keepers, or consumers, to complain about, as they so often do at the present time. *F. W. B.*

THE VICTORIA MEDAL OF HONOUR IN HORTICULTURE.

As was announced in our issue for last week, the presentation of three of the above Medals was made on Tuesday last, in connection with the afternoon meeting of Fellows in the Drill Hall.

Mr. Harry James Veitch, who presented the Medals on behalf of the Council, said that the President, Sir Trevor Lawrence, Bart., had unfortunately been obliged to attend a meeting in connection with the King's Hospital Fund, or he would have been present to have discharged that pleasurable duty. Mr. Veitch briefly recounted the history of the institution of the Medal to memorialise the sixtieth year of the reign of Queen Victoria. The number of medals was then fixed at sixty, but after Her Majesty's death three years subsequently, it was decided to make the number of medallists sixty-three, one for every year of the Queen's reign.

Mr. Geo. Massee of the Herbarium, Royal Gardens, Kew, was, said Mr. Veitch, the leading authority on plant diseases in this country, and in his investigations at Kew, had done a great deal of good work on behalf of cryptomatic botany. He had also given some valuable lectures to the students in the Society's garden at Chiswick.

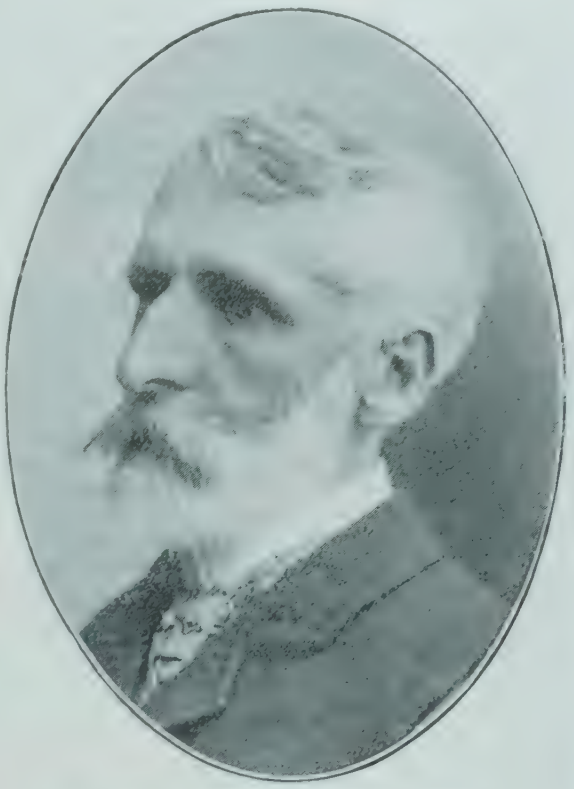
Mr. J. T. Bennett-Poe was the next gentleman to whom a Medal was presented, and Mr. Veitch

MR. GEO. MASSEE, V.M.H.

said that when the medal was instituted, Mr. Poë was a member of the Society's Council, and for that reason could not accept one. The medal was a recognition of the energy and patience Mr. Poë had practised for many years in the cultivation of valuable plants whose cultivation was a matter of some difficulty. In this way many a good garden plant that had been forgotten or lost had been brought again before the notice of horticulturists when exhibited by Mr. Poë in the Drill Hall. Mr. Poë had also done excellent work for the Society upon its Council, of which he had been a most efficient member.

Mr. Henry Cannell, the third to receive the Medal, had done, said Mr. Veitch, very much for practical horticulture, indeed, he knew of no one who had done more. Through his energy and perseverance, he had advanced horticulture in many ways, giving as an instance the popularisation of the Cactus Dahlias.

We have much pleasure in reproducing the photographs of the gentlemen named above, for although all of them are widely known, there must be some of our readers who are not personally acquainted with them. To Mr. Geo. Massee, we and our correspondents are frequently indebted for valuable advice upon the fungoid pests of plants; and Mr. Cannell's work in improving the strains of florist's flowers calls for the appreciation of all garden-lovers. Mr. Poë is an excellent representative of the enthusiastic amateur to whose intelligence, patient work and liberal patronage the horticulture of this country is much indebted.



MR. J. T. BENNETT-POË, V.M.H.

HOME CORRESPONDENCE.

SANTALUM ALBUM.—With reference to the paragraph in the *Gardeners' Chronicle* regarding the discovery by Mr. Barber, that Santalum album is a root parasite, it would be interesting to know if any proof of root-parasitism by that tree has been published by Mr. Barber. Mr. John Scott, at one time Curator of the Calcutta Botanic Garden, published a similar statement many years ago, but memory has not preserved to me any reasons annexed, beyond the fact that Santalum grows well among other plants, and is difficult to transplant. I have searched for more definite information. A strong plant of Santalum had sprung up in a large pot, with a plant of another sort; the soil was placed under a water-tap and carefully washed away, but no evidence of parasitism was observed, and the Santalum, potted by itself, grew well. One example is obviously insufficient to found a definite impression upon, and if our friends in tropical countries would search for and send home the united roots, an interesting question would be satisfactorily settled. It is well known that many plants, especially of the Scrophularia group, thrive well only when their roots are united to those of other plants, and the want of aid of this nature may be the cause of some of our failures in cultivation. *G. Marshall Woodrow.*

THE SPOT DISEASE OF CUCUMBERS.—With reference to the spot disease in Cucumbers, my opinion of it, after having experience this year, is that it has been greatly assisted by, if not entirely due to, the recent bad season, viz., lack of sunshine, consequently a lack of warmth in the soil; and a confined, hot, and moist air in the house; indiscreet watering at the roots, and damping down, which I firmly believe first sets up the disease. During a season like this, fire-heat has been required night and day, to avoid fluctuations of temperature; ventilation with discretion night and day, to disperse the hot, stagnant air, watering and damping down being done early in the day, and but sparingly. I believe the disease is bred entirely in the houses, and is not in the soil. I lost nearly all my first early plants, and the plants now in bearing are not entirely free of it; but by constantly going over the plants and picking out the spot from the leaves, I am able to reduce the chances of infection; hence the value of isolated houses. By following out my ideas of cultivation, I believe the disease can be overcome. *C. E. P., Enfield.*

THREE GOOD COLCHICUMS. — The three following Colchicums have flowered well with me this autumn. All are fine flowers, more resembling Tulips in size than Meadow Saffrons, and are very similar in appearance. I have been at some pains to determine their differences, with the following results. Colchicum Bornmülleri: first flower expanded September 8; extreme height 9 inches, length of petal 3¼ inches, breadth of petal 1½ inch; colour pale lilac-pink. Colchicum speciosum: first flower September 13; height 9 inches, length of petal 3¼ inches, breadth 1¼ inch; colour very similar to that of the last-mentioned, but slightly deeper. Colchicum speciosum maximum: first flower September 27; height 7½ inches, length of petal 3 inches, breadth 1¾ inches; colour deep rosy-mauve, which contrasts well in the expanded flower with the white at the base of the petals, which forms a ring in

MR. HENRY CANNELL, SENR., V.M.H

the centre of the blossom. Of the three the last-named is perhaps the most ornamental, owing to its deeper colouring, and the greater breadth of its petals, but all are strikingly handsome. The white form of C. speciosum, catalogued at £5 5s. per bulb, must be a splendid thing, but its price will prevent its acquirement by the majority for the present. The double white C. autumnale album plenum, of which I have a few dozen, is just expanding its first flowers (October 1). *S. W. F.*

TOMATOS.—I can endorse all that your correspondent, Mr. F. J. Fletcher, says about Sutton's Winter Beauty, for I have grown it this year in pots, planted out, and planted early and late, and it has given splendid fruits since the third week in May. I recommend the cultivation of Tomatos in 12-inch pots, and after they are full of roots, which happens in a very short space of time, to partially plunge the pots in some good loam, mixed with a small quantity of rotten farmyard manure.

The advantage of so doing is that roots emerge from the holes in the pots and enter the surrounding compost. We have at the present time plants that are carrying half-a-dozen pounds of fruits each. I think very highly of Tomato Lister's Prolific, which is a grand cropper, and just the right size for the market grower, who wants fruit of middling size, although if the trusses are thinned when in flower, some large fruit can be obtained. The gardener in a private place prefers Tomatos that crop abundantly and are of fine flavour. Sutton's Winter Beauty has these qualifications. I have planted it in Melon pits after the Melons are over, and the plants are now showing two and three trusses of bloom. The variety deserves another name, for it is an excellent summer-cropping Tomato. *W. J. Grace, Hampworth Gardens, Downton.*

BLUE HYDRANGEAS.—I was interested in the article on this subject, written by Mr. Bartlett, gardener at Pencarrow, Cornwall, in which he gives his theory as to what causes Hydrangeas to change from their natural colour of pink to a blue colour, and he seems to attribute the cause to the effect of light and shade, and not to the soil. It would be easy for anyone to test this by keeping some plants in shade and some in sunshine for a few years. As I have reared many thousands of Hydrangeas of almost all the commoner varieties during my eighteen years of experience in the gardens of Menabilly, I venture to give my opinion in this matter. I am convinced that the blue colour arises mainly from the soil, whether the plants be grown in shade or in sunshine. There is no doubt that the original and natural colour of Hydrangeas is always pink and never blue; and whenever they are planted out anywhere hereabouts, if the soil contains leaf-mould, whether that from deciduous or from Coniferous trees, or if there is peaty or vegetable matter in the soil, it invariably happens that in the course of two or three years, most of the flowers turn to a blue colour; but if there is no vegetable matter incorporated with the soil, they remain of natural colour, pink. In talking to Mr. Rashleigh on the subject, he tells me that his father used to have the Hydrangeas, which then surrounded parts of the lawn in front of the house at Menabilly, alternately blue and pink; and he made the alternate plants blue by regularly placing the short mowings of grass from the lawn and decayed leaves round the roots of those plants he wished to turn to a blue colour, and this vegetable matter had the desired effect. Mr. Rashleigh also drew my attention to a row of about two hundred plants now growing by the side of a road under Fir-trees. For two or three years after they were planted out the flowers remained pink, but at the present time most of these plants are covered with flowers beautifully varied with pink and blue, and he attributes this to the needles of the Fir-trees and the leaves of other trees which overhang them, and are continually supplying them with the vegetable matter which has changed and is changing their colour. It may be interesting to add, that we have year after year planted hundreds of plants raised from cuttings, taken from the bluest of the Hydrangeas growing in the woods and gardens, into our open nursery grounds, which consist of ordinary good garden soil, and they invariably produce pink flowers the first year. We are about to make experiments by planting some rows of Hydrangea-cuttings in soil gathered from the surface of old plantations, some of the cuttings being from blue, and some from pink flowering plants. My experience teaches me to reject, as of any permanent effect upon the colour, all suggestions of artificial chemicals. Everyone of the many thousand plants reared at Menabilly has been raised from a cutting. We do not know what the seed of the Hydrangea is like, for we have never seen any. These beautiful plants often begin to flower in June, and remain in flower and leaf until the frost of January, February, or March months, turns them brown. Let me also add, that the varieties of Hydrangeas which turn blue are Hortensia, Thunbergi with the black stem, and the Otaksa kinds. But H. paniculata and H. quercifolia and Dr. Hogg remain white; also the most exquisitely beautiful varieties of H. stellata rosea, &c., retain their own lovely characteristic variations, which appear at the same time on each plant, of white, blue, pink, and dark rose colours. It may not be generally known that amongst the many advantages which belong to Hydrangeas for ornamental wood coverts are that the rabbits will not eat Hortensia nor Otaksa, but they greedily devour paniculata and quercifolia. Again, the stems of Hortensia are repellent to Ivy, which does not attempt to climb its living stems. A damp soil, and a climate where night dews are heavy, are most favourable conditions to the growth of the Hydrangea, but the hard leaf-droppings from Beech trees, whose dense foliage keep off night dews, are the least favourable. *Wm. H. Bennett, The Gardens, Menabilly, October* 18, 1902.

—— In Mr. A. C. Bartlett's article (*Gardeners' Chronicle*, p. 259) on the causes influencing the production of blue flowers by Hydrangeas, occurs the sentence, "the almost universally adopted theory is, that it is 'something' in the soil." Whilst agreeing with this somewhat vague theory, I venture to think that what this "something" is has never yet been ascertained. Some hold that iron is the colouring ingredient, others attribute the hue to peat; but although many cases may be adduced where Hydrangeas growing in iron-impregnated or peaty soil bear blue flowers, numerous instances may be cited where plants growing in similar staples produce blooms of the normal pink tint. During a visit to a noted garden on the southern coast of Dorsetshire, the soil of which contains much iron, I found that almost all the Hydrangeas, of which a large number are grown, bore pink flowers. The only blue-flowered specimens were growing in the shade, and the head gardener shared the opinion of Mr. Bartlett that the colouring was due to the position they occupied. While, however, allowing that Hydrangeas grown under the shade of deciduous trees more often produce blue flowers than those grown in the full sunlight, it is well known by those who have the opportunity of seeing Hydrangeas in bloom in various gardens, that shaded plants often bear pink flowers; and as testimony against the validity of the shade theory, I may say that the bluest-flowered Hydrangeas I have ever seen were growing at the edge of a steep cliff overhanging the sea, where from dawn till nightfall they never experienced a particle of shade. Owing to their exposed and sunny position, the flowers matured unusually early; and, according to Mr. Bartlett's views, this would have led to their being pink, but they were blue, some being almost of Forget-me-Not tint. About a quarter of a mile from where I write, several Hydrangea bushes are flowering on the steep bank of a little streamlet in partial shade, some bearing blue blossoms, others pink. One blue-flowered plant is growing between and only a few feet distant from two bearing pink blossoms. An attempt has been made to turn the flowers of one bush from pink to blue by burying a quantity of iron filings in the soil above the roots; but this had not the desired effect, and in all cases which have come under my notice where iron or alum (both recommended for obtaining the blue colour) have been used, though a washy purple has sometimes appeared, the clear blue of naturally-grown flowers has not been attained. In an estate where numbers of Hydrangeas are grown in the woods and beneath trees along the verges of the carriage-drive, one bush, 7 feet high and 14 feet in diameter, was covered with pale blue flowers; one bloom, however, close to the ground at one side, was bright pink, and on examination proved to be the solitary flower of a little plant, about 18 inches in height, which was pressed downwards by the spreading branches of the larger bush. I assume that it owed its pink colour to the fact that its roots had not descended deep enough to reach whatever imparted the abnormal hue to the flowers of the large plant. Certainly, if shade were the predisposing cause of the blue colouring, this flower should have been bluer than the rest, since it was overshadowed by its giant neighbour. *S. W. F.*

THE CANADIAN WHEAT BELT.—Might not English newspapers do more than they are now doing to keep that magnificent area of Wheat land in Western Canada thoroughly British by encouraging the emigration of English people to their own territories. Millions of acres of the finest agricultural land in the world are now being offered by the Canadian Government (160 acres a head, free) to all *bonâ fide* settlers, and yet English people are looking on while Americans (who generally know a good thing when they see it) are rushing over the border by thousands to seize the opportunity, and, of course, their future reward. It grieves me to see what is now a fine British province being settled so largely by Americans and foreigners. I am not a capitalist, or I would soon take out a few thousand of good British blood to settle upon these fine farming lands—I mean, take some of those who are now treading on each other's heels in the Old Country, scrambling for a living. But why do not they go on their own account? Are they afraid they would be going from civilisation to barbarism in a wild, unknown land? Twenty-two years ago I left England, and made what to me was largely a plunge in the dark. I have never regretted the step I then took, for I have learned to love Canada and her people, and hope to return again before very long. In the meantime, if my twenty years of experience in Canadian life can throw any light upon the step other people may now be contemplating, I will gladly do what I can to help them by answering any questions to the best of my ability, provided those who ask them will enclose stamped and addressed envelope to my private address, Alexandra Park Road, Wood Green, N. To-day there is plenty of the choicest land to be had for next to nothing; five years hence it may be in the hands of aliens. Now is the time if English people are going at all. Why not make up parties of say 100 each, and go out and settle by townships in company together? Why not a large party for next March? I am willing to do all I can to help. (*Rev.*) *George E. Lloyd, Wood Green, N., Deputation Secretary (for Canada), Colonial and Continental Church Society.*

COMMEMORATION TREES.—A desire is being again expressed amongst a large and increasingly important section of His Majesty's subjects, more especially in the farming and rural districts, to the following effect:—That on the day of the visit of their Majesties to the City of London, on October 25 and 26, when their Majesties will offer thanksgiving at St. Paul's for the King's marvellous recovery, all those desirous of giving practical and lasting evidence of their thankfulness to Almighty God, and having lands or gardens, however humble their home or their means, should plant one or more fruit-trees in suitable places, that from year to year, having given proper care, so that at the time of their becoming fruit-bearing, one-half the yield, or the value of it, shall be given to the nearest hospital or infirmary as a special gift to the patients, or for their use; with a further suggestion: That notice be given of the place where the said trees have been planted to the nearest hospital. Such notice to remain in the archives of the hospital, and that a receipt from its secretary on receipt of the fruit or its value, be a valid notice to show that whoever is in possession of the fruit-tree or trees at the time, has complied with the original terms, and that such a receipt may be exhibited at the sale of the remainder of the fruit, and may be specially termed, as distinct from all others, as "The King's Hospital Fruit." There can be no manner of doubt that, as time wears on, these occasions will be celebrated in country districts with great rejoicing. That the remaining half-yield will command special value wherever the receipt from the hospital can be shown will undoubtedly be the case. But the principal object should never be lost sight of, that it was an occasion of thankfulness for the King's recovery, and the means for enlarging the circle of sympathisers for the sufferings of our unfortunate fellows, thus fostering in us a habit of practical charity, and all its attendant satisfaction and pleasure. The nature of the fruit will be left to the option of the planter, and the time of planting; or if inconvenient on the above date, it should be as soon after in the present year as possible. The clergy and ministers of religions of all denominations could largely help this movement by publication in their respective districts or parishes. *F. Fryar Abbey, Huddersfield.*

LACHENALIA FORMING BUDS ON LEAVES.—I enclose you two specimens showing how Lachenalias form bulbs on their foliage. I do not know if this fact is generally known. I only found it out last year by seeing small bulbs forming on a leaf that was half-broken; since then I have made several experiments, and I send you some results. It would seem to be a very quick way of increasing the plants. *Allen Chandler.*

THE OWL.—As an ornithologist during my lifetime, I require enlightenment by my superior intelligent friends. I am much in the dark as to why the owl should keep up its notes in the daytime, a thing to me very unusual, but the last two or three years I have noticed the notes of the owl more or less heard in the daytime. I am quite close to a covert and plenty of Ivy-clad trees, but their note is very frequent; it matters not if the sun shines or not, you can hear them. If any of my learned friends can tell me, I should like to know, as I am an ignoramus in this matter. *J. C.*

ABOUT CUCUMBERS.—I have read with the greatest interest in a recent issue of the *Gardeners' Chronicle*, the article on Cucumber-leaf disease, corroborating, as it does in some respects, the remarks I offered on Cucumber cultivation in the issues of the *Gardeners' Chronicle* of the 20th and 27th ult. It is obvious therefrom that excessive moisture should be avoided; a more moderate temperature and freer ventilation adopted, the latter condition too much dreaded by growers. It is satisfactory to be assured that the seed remains perfectly free from disease, and that there is no fear of its introduction from that source. The prevention of disease, therefore, is a matter in the hands of the cultivator. I am not of a controversial spirit, but would like briefly to reply to one or two points in Mr. T. Mathews' communication in the *Gardeners' Chronicle* of September 27. He says I "lose sight of the fact that market gardeners have to make a living profit on the crops they grow." I do no such thing. I know they have to do this, and that is the very reason I recommend them to follow as closely as possible the example of the private gardener, which I think they could do with benefit to themselves, not necessarily incurring any more expenditure than they are doing at present. Then Mr. Mathews makes the astounding assertion that "what a market grower wants is not healthy plants that will last a whole season, but good fruit and plenty of it." Must I infer from this that he prefers unhealthy to healthy plants? In my article I did not say that plants should last a whole season, but only advocated the prolongation of their lives in a healthy condition by other means than those so much in evidence at the present time. Mr. Mathews believes that the "weekly advice in the gardening journals is practically of no use whatever to market growers, as they know more than the writers do; and there should be a calendar each week on profitable growing by a market grower." [This is often given.] I am not one whit surprised at the latter remark, as I know very well it is the general opinion amongst growers for market; but that fact, I think, in no way vouches for the correctness of their opinions. A more frequent calendar by a market grower would, doubtless, be very acceptable reading. A treatise also by the same pen, describing accurately the differences between the modes of work in market and private gardens, would be likely to find many readers. *J. Lowrie.*

TREE-BARK INJURED BY HAIL.—When Mr. Woodward brought examples of the injurious effect of the September hailstorm at Wateringbury, on the bark of fruit-trees to the Drill Hall, on the 7th inst., he hoped that some practical advice might be tendered to him, as to the best course for him to take in relation to such injury. Not that on the whole Mr. Woodward of all men needs advice as to how to grow fruit, but the case in question was one with which even he had no previous experience. When the examples were sent to the Scientific Committee, hope was naturally expressed that the members could have furnished some useful information. The published report of the committee's proceedings is therefore disappointing, seeing that none such in the way of comment or otherwise is published. I venture to suggest to Mr. Woodward that he would do well to leave some trees untouched beyond giving them the usual winter pruning, just to see how the injured bark, which on the samples was terribly split and cracked, though all vertically. Others should be hard cut back so as to get rid of all the split bark shoots, and some others have the bruised bark coated over with some simple paint, such as cowdung or clay, soft-soap, sulphur paste, and paraffin. This coating should suffice to exclude air and check fungoid growth, yet not in any way preventing the cambium layer from increasing until, as probably would be the case, the interstices of the broken bark were filled up. It was just on these heads that Mr. Woodward desired advice, and it may be possible elsewhere, and in later years, some other growers placed in the same position may ask for similar help. To treat all the injured trees alike would hardly conduce to the giving of diverse methods a fair trial. Mr. Woodward feared canker might follow, but as some varieties of Apples are more susceptible to canker than others are, the fairest test would be to leave undressed a few of such ones and a few of others not so susceptible. *A. D.*

SOCIETIES.

ROYAL HORTICULTURAL.

October 21.—The usual fortnightly meeting of the Committees of this Society was held on Tuesday last in the Drill Hall, Buckingham Gate, Westminster. There was a big display of exhibits, and although the amount of space allowed to some of the collections was less than that applied for, the hall was well filled.

Orchids were shown in fairly large numbers, and the Orchid Committee's awards to novelties included two First-class Certificates and one Award of Merit.

Fig. 104.—Dædalacanthus parvus: flowers purplish-blue.

(see p. 312.)

Chrysanthemums are now a prominent feature amongst plants in bloom, and there were two groups of these plants, and several collections of cut blooms exhibited. Three new seedlings gained Awards of Merit, and the Floral Committee also made similar awards to a seedling Nerine from Mr. H. J. Elwes, a variety of Anemone japonica from Messrs. Barr & Sons, and Cimicifuga japonica from Gunnersbury House Gardens. A group of Tree Ferns in pots, shown by Mr. W. Bull, King's Road, Chelsea, gave to the hall a most unusual and beautiful appearance. Hardy flowers were still plentiful, and amongst the perennial Asters and Phloxes there were a few flowers of the surviving Dahlias.

The FRUIT AND VEGETABLE COMMITTEE recommended an Award of Merit to a new Apple Edward's Coronation; and the highest award possible, that of a Gold Medal, to a collection of vegetables from R. W. HUDSON, Esq., Danesfield, Marlow (gr., Mr. Jas. Gibson). The amount of excellent produce shown from this private garden was astonishing, and there were upwards of one hundred varieties represented. Messrs. H. CANNELL & SONS also showed a collection of vegetables; and Lord HASTINGS, gr., Mr. Shingler, some Vines in pots.

At the afternoon meeting, the Rev. W. WILKS (Secretary) read the KING'S letter, which was published in these pages last week, also one fromthe Prince of WALES, in which his Royal Highness gave 50 guineas towards the new Horticultural Hall, and in addition announced that Mr. LEOPOLD DE ROTHSCHILD had that day subscribed 500 guineas for the same purpose. Twenty-six new Fellows were elected, making a total added for the present year of 1,005.

Mr. HARRY JAS. VEITCH, in the absence of Sir TREVOR LAWRENCE, presented the Victoria Medal of Honour in Horticulture to Mr. GEO. MASSEE, Mr. J. T. BENNETT-POE, and Mr. HENRY CANNELL, see p. 309.

Afterwards a lecture upon "Hardy Summer and Autumn Flowering Bulbs," by Mr. RUDOLPH BARR, was read by the Assistant Secretary.

Floral Committee.

Present: W. Marshall, Esq., Chairman; and Messrs. Chas. T. Druery, H. B. May, Jas. Walker, R. Dean, J. F. McLeod, W. Howe, Robt. W. Wallace, Chas. Dixon, W. Bain, Chas. Jeffries, H. J. Cutbush, Chas. E. Pearson, Geo. Gordon, Chas. E. Shea, H. J. Jones, E. H. Jenkins, W. P. Thomson, J. H. Fitt, and Geo. Paul.

Messrs. W. CUTBUSH & SONS, Highgate Nurseries, London, N., again exhibited some pretty varieties of Carnations in pots, including most of those noticed from the same firm on the last occasion; also a telling exhibit of Michaelmas Daisies, shown as branches from the open ground, in some cases, the entire plant being set up. The varieties were chiefly the more showy ones, as Triumph, Katie, Theodora, Edwin Beckett, Captivation, Amellus stella, Combe Fishacre, &c. (Silver Flora Medal).

Some choice Cordylines (Dracænas) were shown by Messrs. B. S. WILLIAMS & SON, Upper Holloway, London, N., all of them being broad-leaved varieties. The well-known and handsome Baptisti was in capital condition, also Gladstone, Alsace Lorraine, Vandendoeli, Prince Manouk Bey, of exceedingly vivid colour, &c. Of that section in which the young leaves assume a light or pale colour, Emile Zola, and Desmetiana were very effective. The small flowered Allamanda Williamsii, was flowering well in a 5-inch pot. Other plants included good specimens of Rhopala coravadensis, and Chamædorea Wendlandi (Bronze Banksian Medal).

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, once more displayed the handsome characteristics of Adiantum tenerum Farleyense, showing some well cultivated plants with finely developed fronds. Some pretty varieties of decorative Cordylines were included also, as Bergmani, Warreni, His Majesty, and Mayii (Silver Flora Medal).

Messrs. W. BULL & SONS, 536, King's Road, Chelsea, London, exhibited about one dozen Tree-Ferns in pots, the highest being a specimen of Cyathea medullaris of about 10 feet. Other species included were Dicksonia antarctica, Cyathea Dregei, Cibotium species, and Dicksonia glauca. The group of these plants, which was arranged in the centre of the Hall, was a very unusual, but very welcome feature at these meetings (Silver Banksian Medal).

Messrs. J. HILL & SONS, Barrowfield Nurseries, Lower Edmonton, also exhibited Ferns, in a group including about fifty species and varieties of Polypodium, conspicuous amongst these being P. glaucum, P. aureum, P. Meyenianum, P. pictum, P. Schneideri, and such simulating species as P. musæfolium and P. vaccinifolium (Silver Flora Medal).

Mr. W. J. GODFREY, Exmouth Nurseries, Devon, exhibited plants and flowers of winter-blooming Carnations, including such excellent varieties as Pride of Exmouth (pink), which is free-flowering, fragrant, and of good size and form.

H. J. ELWES, Esq., Colesbourne, Cheltenham (gr., Mr. Walters), exhibited some very pretty seedling Nerines which he has raised, and in which much colour variation has been obtained. One of these was recommended an Award of Merit, and other good varieties were Mrs. Hamley, Rosebud, colour rose and white, with reddish stripe through centre of the smooth petals; Lady Downe, orange-scarlet; Mrs. Harrison, Miss Shelly, pink; and Lady White, exceedingly pale pink or flesh colour, which Mr. Elwes described as the palest flower he has (Silver Banksian Medal).

A collection of Michaelmas Daisies in two dozen bunches from Mrs. DENNISON, Little Gaddesden, Berkhamsted (gr., Mr. A. G. Gentle), was composed of bright fresh flowers of popular varieties, and several seedlings.

Mr. THOS. S. WARE, Ltd., Hale Farm Nurseries, Feltham, contributed a rich floral bank, which included spikes of Gladioli, Michaelmas Daisies, Pentstemons, and Chrysanthemums from the open border, &c. (Bronze Banksian Medal).

A group of plants of Begonia Gloire de Lorraine, and the variety Caledonia, was shown by HUGH KERR, Esq., Ardgowan, South Woodford (gr., Mr. Dunkley).

Messrs. JAS. VEITCH & SON, Royal Exotic Nurseries, King's Road, Chelsea, exhibited a group of their valuable winter-flowering Begonias, of which Mrs. Heal and Ideala are capital representatives. The flowers of the former variety, which was figured in these pages, on Nov. 16, 1895, are 3 inches across, and in colour brilliant red; Ideala has smaller flowers, which are produced with exceptional freedom, and the habit is rather more compact, *Gardeners' Chronicle*, vol. xxx., 1901, p. 411. These are B. socotrana hybrids, but another good winter-blooming hybrid was shown in B. × incomparabilis, from B. Froebeli × B. polypetala. The pretty blue-flowered Dædalacanthus parvus, (see fig. 104), was also shown again. It has a habit similar to that of an Eranthemum, and the flowers are purple or a violet shade of blue. We have not had an opportunity to examine the plant, but it is like a dwarf variety of the old Justicia nervosa, figured in *Bot. Mag.*, t. 1358. There were also flowers of the section of greenhouse Rhododendrons known as the Javanico × Jasminiflorum hybrids (Silver Flora Medal).

Messrs. J. PEED & SONS, Roupell Park Nurseries, West Norwood, exhibited a group of small plants of Cordylines, Codiæums, and other ornamental plants of a size suitable for furnishing vases.

The suitability of Aucuba vera for the furnishing of window-boxes and for flower-beds during winter, was shown by a group of abundantly-berried plants from Mr. J. RUSSELL, Richmond Nurseries, Surrey. The plants were in 5-inch pots (Bronze Banksian Medal).

Messrs. BARR & SONS, King Street, Covent Garden, London, W.C., had a pretty group of hardy flowers, in which perennial Asters, Kniphofias, herbaceous Phloxes, Lobelia cardinalis Queen Victoria, and a few Cactus Dahlias were conspicuous (Bronze Banksian Medal).

The pretty little Sibthorpia europæa aurea, and the variety with variegated leaves, were shown by Mr. T. S. WARE, Ltd., Feltham.

Sir TREVOR LAWRENCE, Bart., Burford, Dorking (gr., Mr. Bain), exhibited some flowers of tuberous Begonia, in which extraordinary modifications have taken place. The varieties have been raised on the Continent, where they have been known as "phenomena," and we have referred to them previously in these columns.

A Begonia exhibited by D. C. GUTHRIE, Esq., East Haddon Hall, Northampton (gr., Mr. H. Trueman), and said to be a "sport" from Begonia Gloire de Lorraine, bore no resemblance to that variety. The reputed "sport" has tuberous roots, and flowers and foliage very similar to those of the tuberous-rooted section. If the variety is a true sport, it is a most remarkable one.

Messrs. GEO. BUNYARD & Co., Maidstone, showed flower-spikes of Bigelovia graveolens, a yellow-flowered Composite, having a superficial resemblance to the British Golden-flowered Aster, A. lynosyris.

Some excellent coloured photographs obtained from nature were contributed by Mr. T. KNIGHT BARNARD, Photographic Engineer, Hammersmith, and excited considerable interest.

CHRYSANTHEMUMS.

Messrs. W. WELLS & Co., Ltd., Earlswood Nurseries, Red Hill, and Mr. H. J. JONES, Ryecroft Nursery, Lewisham, each set up imposing groups of Chrysanthemums, one on either side of the entrance to the Hall, where they formed the two leading floral objects of the meeting.

In the Earlswood group could be seen some blooms of fine Japapese varieties, having as a background market and decorative varieties, and a front line of the same, with exhibition blooms on boards. Mrs. T. W. Pockett is a deep canary-coloured variety, with long, drooping florets, and of symmetrical form; this fine variety was numerously shown, and in every case in fine character. Miss Elsie Fulton is a broad-petalled incurved Japanese, much in the way of Miss Alice Byron. Lord Alverstone is a large, full, incurving Japanese, of a deep crimson colour, with an amber reverse; large and full, but with a tendency to show too much of the reverse of the florets. Bronze Soleil d'Octobre is a good bronze form of this well-known variety; Mrs. A. McKinley is terra-cotta of a bronzy shade, with long, drooping florets; R. Hooper Pearson, deep golden-yellow, was in fine character; also Sir George White, a large, full flower, of a golden-terra-cotta shade; and Nellie Pockett, of the decorative type; there were Carrie, Gertie, Goacher's Crimson, Jimmie, Mytchett Beauty, Parisiana, and Pergolese (Silver-gilt Flora Medal).

Mr. H. J. JONES had a background of elegant Bamboos to his group, with decorative and exhibition Chrysanthemums, and here and there a Croton lending touches of bright colour, a very effective arrangement. Of exhibition blooms there were George Lawrence, bronzy-yellow; Mrs. H. Emerton, deep canary-yellow, like a yellow Madame Carnot; Mrs. George Mitcham, silvery-mauve; Mrs. Greenfield, rich deep yellow; Mrs. C. Griffin; Miss Elsie Fulton; Master C. Seymour, red, with old gold reverse; Earl of Arran, primrose, &c.; also a highly-developed white incurved, Mrs. C. Crooks; and such decorative varieties as Ryecroft Beauty, of a soft shaded pink; Mytchett Beauty, Elsie Wright, Market White, Goacher's Crimson; White Quintus, a free blooming white; Vivid, fiery red, &c. (Silver Gilt Flora Medal).

Mr. W. J. GODFREY, nurseryman, Exmouth, contributed a number of novelties in cut blooms and also bunches of sprays of charming decorative varieties, chief among them was Exmouth Rival, a brilliant chestnut-crimson coloured bloom, with petals having a tendency to reflex, commended for its colour; Duke of Devonshire, pale yellow shading to bronzy-yellow; Grandeur, orange-crimson, with old gold reverse; Masterpiece, Lord Alverstone, Kimberley, yellow; Devonshire lass, a broad petalled pink flower, with silvery reverse; Britannia, soft yellow with broad florets; the Lion, pale reddish-cinnamon, with amber reverse, long dropping florets; Earl of Arran, Godfrey's Pride, Exmouth Crimson. Of decorative varieties: Pink Beauty, very pleasing indeed; Harry Gover, bronzy-orange, with gold reverse; October King, reddish-bronze; Godfrey's Pet, Mrs. E. D. Freeman, Delightful, Kitty Crews, Gladiator, &c. (Silver Flora Medal).

Messrs. H. CANNELL & SONS, nurserymen, Swanley, staged a number of specimen blooms, over russety Fern-leaves laid upon the table. The blooms were staged thinly in tin vases, an arrangement much more effective than that of placing them upon flat boards. The leading varieties were Madame Waldeck-Rousseau, amaranth-crimson, with silvery reverse; Lord Hopetoun, bright crimson, reverse old gold; Marquise V. Venosta, reddish-purple, a highly promising variety; Mrs. H. Emmerton, Marjorie, &c. (Silver Banksian Medal).

From Mr. HENRY PERKINS, gr., Greenlands, Henley-on-Thames, came a few promising seedlings of his own raising, viz., Hon. Mrs. Acland, bright yellow; Lady Acland, paler yellow, with long drooping florets; Mary Perkins, a large pale yellow Japanese, somewhat incurving, the reverse of the petals paler; and Primrose Dame, of similar character, but paler in tint.

Miss EDITH SOMERS, Bushey, Herts (gr., Mr. Cooper), had cut blooms of such well known varieties as Lady Byron, Hairy Wonder, Mrs. G. W. Palmer, Mutual Friend, Madame Gustave Henry, Charles Davis, &c.

Mr. MARTIN SILSBURY, Shanklin, Isle of Wight, had Japanese Mabel, a good deal in the way of the old Belle Paule; and Mrs. F. W. Vallis, yellow, with narrow lines of crimson on the basal florets.

Mr. G. SHAWYER, Cranford, Middlesex, had a group of his new early market varieties, which were greatly admired for their handsome fresh blooms, viz., Miss B. Miller, deep golden-yellow, a beautiful variety; Black Prince, deep chestnut-crimson; Nelly Blake, pale bright crimson; Mrs. Lonsdale, of a shade of old gold; Eleanor, white; Yellow Prince, lemon yellow; and a seedling of very fine form.

AWARDS OF MERIT.

Anemone japonica Queen Charlotte.—This is a very fine variety, with flowers 3½ inches across, of a delicate shade of pink colour. Shown by Messrs. BARR & SONS.

Cimicifuga japonica.—A japanese Bugwort (Ranunculaceæ), known in gardens for a score of years. The species is a good hardy herbaceous perennial plant, and produces long spikes with closely-packed, sessile, white flowers, for a length of 5 inches or more. Shown by Mr. LEOPOLD DE ROTHSCHILD, Gunnersbury House, Acton (gr., Mr. J. Hudson).

Nerine Miss Carrington.—A pretty seedling, shown by Mr. H. J. Elwes. The flowers are of a new shade of rose colour, with a silver halo, and a reddish stripe along the centre of the petals.

Chrysanthemum Madame Paolo Radaelli.—A large, full, deep flower, with long, stout, curling florets. The ground colour is blush with a shading of rose. One of M. E. Calvat's seedlings, and a very fine exhibition variety. From Mr. Norman Davis, Framfield, Sussex.

Chrysanthemum Hon. Mrs. Acland.—Deep yellow, with broad, ribbon-like florets curling at the points, full and massive, and most attractive in colour. From Mr. H. Perkins, The Gardens, Greenlands, Henley-on-Thames.

Chrysanthemum Miss Elsie Fulton.—A fine incurved Japanese, with massive, broad florets of a glistening white sheen, in the way of Miss Alice Byron, but said to be superior. From Messrs. W. Wells & Co., Ltd., Earlswood Nurseries, Redhill.

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. Jas. O'Brien (hon. sec.), J. G. Fowler, De B. Crawshay, H. Little, N. C. Cookson, H. M. Pollett, J. Douglas, F. A. Rehder, W. A. Bilney, J. Charlesworth, F. W. Ashton, G. F. Moore, F. J. Thorne, W. Boxall, W. H. Young, W. H. White, H. A. Tracy, H. Ballantine, J. W. Potter, and F. Sander.

There was a very good show of Orchids, seven groups being staged by various exhibitors, and a number of new Orchids submitted to the scrutiny of the Committee.

J. Bradshaw, Esq., The Grange, Southgate, was awarded a Silver Flora Medal for a group in which were some fine Cattleya labiata, one of them specially beautifully coloured, and another named Her Ladyship, a pretty variety with uniform rose colouring and only slight purple pencillings on the lip. The group contained, beside these, Cattleya Loddigesii alba, excellent Odontoglossum crispum, including the showy blotched O. c. Nestor; several well-grown plants of Cattleya × Mantini nobilior, Odontoglossum grande, Oncidium Forbesii, O. tigrinum, Masdevallia Veitchi, &c.

Messrs. Jas. Veitch & Sons, Chelsea, were awarded a Silver Flora Medal for an excellent group of hybrid Orchids, in which were conspicuous several good Lælio-Cattleya × splendens, L.-C. × Bletchleyensis Urania, L.-C. × Haroldiana, L.-C. × Cornelia, and the new L.-C. × Eva (C. Gaskelliana × L. tenebrosa), with nearly white sepals and petals and prettily marked lip; also Cattleya × Maroni, C. × Chlonia, C. × porphyrophlebia, Cypripedium × Baron Schröder, &c.

Messrs. Charlesworth & Co., Heaton, Bradford, were voted a Silver Flora Medal for a showy and interesting group of hybrids. Among them were four good plants of Cattleya × Mrs. J. W. Whiteley, and one of the variety Superba, a very much finer thing, with a large amount of orange colour in the broad labellum; C. × Weedoniensis Kubelik, a delicately-tinted hybrid; C. × Bowringiano-superba, a new variety, with dark rose-purple flowers; C. × Iris, C. × Chamberlainiana, Lælio-Cattleya × Haroldiana, with fine orange-coloured sepals and petals; L.-C. × La France, L.-C. × Gottoiana superba, Lælia × Helen, Cypripedium × Sir R. Buller, Dendrobium × Lowii-formosum, and Odontoglossum crispum Trianæi roseum, and Oncidium Lanceanum, both good.

J. Gurney Fowler, Esq., Glebelands, South Woodford (gr., Mr. J. Davis), received a Silver Banksian Medal for an effective group of good things, in the centre of which was the phenomenal Lælia × purpurato-Digbyana 'King Edward VII.', which was the subject of one of our coloured plates in the Coronation Number. The flower was scarcely so good as when last shown, as might be expected, a few months since the last flowering having elapsed. Other fine things were Lælio-Cattleya × Bletchleyensis Fowler's variety, very large, and finely coloured; L.-C. × Haroldiana superba, with sepals and petals orange colour, the latter tinted rose, and dark purple lip; Cattleya Bowringiana triumphans, a fine flower of rich purple colour; C. × Mantini, C. labiata concolor, blush-white, with a purple blotch on the lip; a fine specimen of Dendrobium aureum, covered with its fragrant flowers; Cypripedium × Captain Holford, &c.

Walter C. Walker, Esq., Winchmore Hill (gr., Mr. Geo. Cragg), again showed a collection of his fine Odontoglossum crispum, grown in the manner described in our report of the last meeting; arranged with equally well-grown Dendrobium Phalænopsis (Silver Banksian Medal).

Messrs. Hugh Low & Co. were awarded a Silver Banksian Medal for an effective group, the central figure in which was a noble plant of Cypripedium × l'Ansoni magnificum, one of the finest hybrid Cypripediums. With it were Cattleya aurea Rosita, Lycaste × hybrida Low's variety, the handsomest of its class yet shown; Cattleya labiata varieties, C. × Mantini nobilior, Oncidium Forbesii, O. ornithorhynchum, and O. o. album; the blush-white Lælia pumila Low's variety, Cypripedium × Marshallianum, &c.

Messrs. Sander & Co., St. Albans, secured a Silver Banksian Medal for a good group, in which were two fine forms of Vanda cœrulea; the pure white Dendrobium Phalænopsis hololeucum, Lælio-Cattleya × luminosa, L.-C. × Euterpe aurea, L.-C. × Bletchleyensis, L.-C. × Berthe Fournier, varieties of Lælia pumila, Cattleya × Mantini, C. × Maroni; and among Cypripediums three very remarkable specimens, viz., C. Charlesworthi virginale, with a fine pure white dorsal sepal, having a small green base, and pale purple central band; C. × Transvaal (Chamberlainianum × Rothschildianum), with fine rose-spotted labellum, and extended yellowish petals spotted with purple; and C. × Nellie (tonsum × Charlesworthi).

Baron Sir H. Schröder, The Dell, Egham (gr., Mr. H. Ballantine), showed the original plant of Odontoglossum × Wattianum in fine condition.

Norman C. Cookson, Esq., Oakwood, Wylam (gr., Mr. H. J. Chapman), sent Lælia præstans Oakwood variety, a fine white, with slight lavender tint, and slate-blue front to the lip; and Cypripedium × triumphans superbum.

Mr. Jas. Douglas, Edenside, Great Bookham, sent Lælio-Cattleya × Gottoiana Edenside variety, a large, finely-coloured flower.

Mr. H. A. Tracy, Twickenham, sent Lælio-Cattleya × Proserpine (L. Dayana × C. velutina).

H. J. Elwes, Esq., Colesborne Park (gr., Mr. Walters), showed Stenoglottis longifolia Colesborne variety, with three spikes of blush-white flowers, spotted with purple.

Messrs. B. S. Williams & Son, Holloway, showed a fine plant of Lælio-Cattleya × Henry Greenwood, and Cypripedium × Goweri magnificum.

A. Heygate, Esq., Milford-on-Sea, sent Cypripedium Francis Heygate (Charlesworthi × Mastersianum).

Awards.

First-class Certificate.

Odontoglossum × crispo-Harryanum delicatum, from Baron Sir H. Schroder, The Dell, Egham (gr., Mr. H. Ballantine).—A very fine form, with large flowers of good substance. Sepals and petals white, tinged slightly with green on the outer halves, and blotched with dark purple on the inner portions. Lip broad, pure white, with yellow crest, and bright purple markings in front of it.

Lælio-Cattleya × Bletchleyensis Fowler's variety. — A grand form, with very large flowers, the sepals and petals of which are beautifully tinged and veined with rose-purple. Lip of a dark ruby-red tint, with lighter purplish margin.

Award of Merit.

Lælio-Cattleya × Mrs. Chamberlain (C. chocoensis × L. Digbyana), from the Right Hon. Joseph Chamberlain, M.P., Highbury, Birmingham (gr., Mr. J. Mackay).—A charming, delicately-tinted flower, the nearest to pure white of any of the hybrids from L. Digbyana; and having the fine form, fringed lip, and delicate fragrance of the other better-known hybrids of it; and some forms of C. labiata. Sepals and petals white, with a slight pearly-pink tint. Lip white, with a greenish-yellow disc, and pale rose tint in the front portion, which is beautifully fringed.

Cultural Commendation.

To Mr. W. H. White, gr. to Sir Trevor Lawrence, Bart., Burford, for a fine plant of Angræcum Kotschyi, an East African species, which first flowered with Messrs. Jas. Veitch & Sons, Chelsea, in 1880; the plant, probably the one now shown, being soon afterwards acquired by Sir Trevor. It is a remarkable species, with dark green, leathery leaves, and pendent racemes of white flowers of good size, and bearing long slender spurs spirally twisted towards the extreme half.

To Mr. J. Gilbert, gr. to Francis Wellesley, Esq., Westfield, Woking, for a splendid plant of Cattleya × Maroni (aurea × velutina), with nine fine yellow and rosy-crimson flowers on one spike.

To Mr. Walters, gr. to H. J. Elwes, Esq., F.R.S., Colesborne Park, for a well grown example of Habenaria carnea with three spikes of fine flesh-coloured flowers.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq. (Chairman); and Messrs. H. Eslings, S. Mortimer, Alex. Dean, W. Pope, Ed. Beckett, Geo. Kelf, H. E. Wright, J. Willard, J. Jaques, Geo. Reynolds, F. Q. Lane, Jas. Smith, G. Norman, Jas. H. Veitch, Geo. Wythes, and W. Poupart.

R. W. Hudson, Esq., Danesfield, Marlow, Bucks (gr., Mr. J. Gibson), showed a large collection of Vegetables, roots, &c. Among much excellent produce we remarked fine, but scarcely mature heads of Braganza Cabbage Couve Tronchuda, Best-of-All Savoys, Solid White Celery, roots of Celeriac of small size, some nice heads of Michaelmas White Broccoli, very compact and white; various Kales plain and curled; Student Parsnip of the undesirable spindle Carrot shape; Commodore Nutt Cabbage-Lettuces; Flower of Spring Cabbage with good close hearts; selected Ailsa Craig Onion, fine firm dwarf Brussels Sprouts, blood-red Beet, Perfection Savoy, Earliest Green Kohl-rabi, much too large for human consumption; Autumn Giant Cauliflower, Giant French Asparagus, which consisted in reality of small green heads; The Gladstone Pea, excellent for so late a date; Leeks, Carrots, numerous varieties of Potato, enormous pods of Runner Beans, Turnips, Gourds, Tomatos, &c. (Gold Medal).

Messrs. H. Cannell & Sons, Swanley, showed a collection of vegetables, roots, &c. We remarked some excellent Defiance Cabbages, fine Onions of the Reading Improved, Ailsa Craig, and Masterpiece; Potatos in great variety and of much general excellence of which we noted Lord Tennyson, British Lion, Pink Perfection, The Sirdar, Reliance, Up-to-Date, Scotch Triumph, Progress, Windsor Castle, and Lord Roberts. Capital shapely Snowball Turnips, very fine Carrots, including Guerande, a stump-rooted variety, clear in the skin and shapely; and Perfection Leeks, with 2 feet of blanched stem (Silver Knightian Medal).

Major Bythway, Warleborough, Llanelly, received a Silver-gilt Knightian Medal, for an excellent well assorted collection of Apples consisting of seventy dishes, and largely of culinary varieties rather lacking in colour, but not in other points. Of large varieties of cooking fruit, we remarked Twenty-ounce, Mrs. Barron, Peasgood's Nonsuch, Gloria Mundi, Hamburgh Seedling, Alexander, Stone, Lane's Prince Albert, Roundway, Magnum Bonum, Queen, Glory of England, Golden Noble, and Newton Wonder. Among dessert fruit we may mention Benoni, Ribston, Lady Sudeley, Cox's Orange Pippin, Dutch Mignonne, Calvile Rouge Précoce, Baumann's Red Reinette, Bowhill Pippin, Thos. Rivers, Cobham, &c.

A few Pears and new or little known Apples were shown to the Committee, but no awards were made beyond the one which was secured by the Hon. H. B. Portman.

Mr. Shingler, gr. to Lord Hastings, Melton-Constable, showed his new black Grape "Melton-Constable Seedling," a variety that produces small, well-shouldered bunches of blue-black Grapes, that are covered with a thick coat of bloom; berries round, and of commendable size. The Vines, grown in 11-inch pots, carried four bunches each.

Mrs. Arnold, The Lodge, Dedham, was awarded a Bronze Banksian Medal for varieties of Apples.

Award of Merit.

The Hon. H. B. Portman, Buxted Park, Uckfield, (gr., Mr. Prinsep), for Apple Edward's Coronation, a nice-looking oblate-shaped fruit of medium size, suffused with reddish-brown, streaked red on the sunny side, and pale green on the other side. It has a general resemblance to Cox's Orange Pippin, but the eye is more prominent.

BINFIELD AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

The opening meeting of the winter session of the above Society was held on Tuesday evening, Oct. 14, when there was a very good attendance of members.

Mr. Neve, of Lindlesham, read a most interesting paper on "The Renovation of Old Fruit Trees." A discussion took place at the conclusion of the lecture.

THE UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

The sixteenth anniversary dinner of this excellent Benefit Society, took place on the 16th inst., at the Holborn Restaurant, London. Mr. Arthur W. Sutton, F.L.S., V.M.H., presided, supported on the right by Mr. Wm. Sherwood (son of Mr. N. N. Sherwood), and on his left by Mr. W. Y. Baker (Thames Bank Iron Company). Covers were laid for 114 persons.

The Chairman in proposing the toast of "The King," referred to His Majesty's gracious act in commending the "Hall" scheme of the Royal Horticultural Society, to which he has recently subscribed a sum of

100 guineas, declaring that such support demonstrated the interest His Majesty takes in the practice of horticulture.

The toast of the evening was that of the "United Horticultural Benefit and Provident Society," proposed by the Chairman, who declared that his position there that evening had caused him to read up the constitution and rules of the Society, and having done so he was so struck with their excellence, that he thought it would be difficult for anyone to suggest an improvement in them. Mr. Sutton then referred to the several funds of the Institution, including the Convalescent Fund, which was instituted upon the suggestion of Mr. N. N. Sherwood. He said that he thought this fund should be administered more liberally, seeing that during the past year benefit members had contributed to it £7 16*s.* 5*d.*, and during the same time about £6 10*s.* only had been paid out, whilst there is a reserve of nearly £160. The Chairman made an appeal for more Benefit members, honorary members, and life members, and said that amongst gardeners there is not, and probably will never be, conditions that would be equivalent to "fixity of tenure." No gardener could be certain that he would never need pecuniary help.

Mr. J. HUDSON (Treasurer), responding, also referred to the uncertainty belonging to the gardener's calling, and mentioned two striking instances of misfortune in his own experience. The Society had now a sum of £20,000 invested, and he hoped that the number of Benefit members would be 1,000 before the close of the present year.

The next toast was that of "The Honorary and Life Members," proposed by Mr. C. H. Curtis (Chairman of Committee), who suggested that nurserymen and seedsmen might help the Society, by inserting in their catalogues a description of its advantages. Mr. A. J. Baker responded (in place of Mr. Herbert Cutbush, who was unable to be present), and announced his intention to make his wife a life member.

"The Chairman" was proposed by Mr. Geo. Gordon; "The Visitors" by Mr. C. F. Harding, responded to by Mr. R. Dean, who made a characteristic speech; and "The Press" by Mr. W. Woods, the response being by Mr. W. P. Thomson.

The tables were prettily decorated with flowers, and during dinner some sweetly pretty instrumental music was discoursed by "The Alexandra Trio." This was due to the liberality of the Chairman.

We should mention that the speeches were interspersed with songs, &c., provided by the "Amphion Quartette," the leader of whom, Mr. W. Morris, is a practical gardener, being a decorator in Messrs. Rothschild's garden at Gunnersbury.

It was announced during the evening that the chairman had become a life member, and in addition had presented a sum of 20gs. to the Benevolent Fund.

The following statement of the work and privileges of the Society was presented by Mr. Jas. Hudson, Treasurer, to the Chairman, Mr. Arthur Sutton, on the occasion of the recent annual dinner.

"This Society has been established for thirty six years, its Rules having been certified and passed on August 3, 1866. Like many other such institutions, its progress at first was slow. Thanks, however, to its friends and supporters, its merits were realised by some of those for whom it had been constituted, and for the past sixteen years there has been an uninterrupted run of prosperity. Twenty-one years ago, in 1881, the membership was only eighty-eight; in 1886 it was 177; in 1891 the number was 413; and in 1896, 639. At the last audit the numbers were 904 (end of 1901), but now there are 974 benefit members. The executive hope that the number at the close of this, the Coronation year will amount to 1,000. The funds of the Society have increased in a similar ratio. These in 1891 stood at £3,822; at the close of the last financial year, the amount invested and in hand for current expenses were £19,086. At the present time they stand at £20,000 in the aggregate.

Some of the large benefit societies which have heaped up their funds in tens of thousands by the misfortunes of their lapsed members, have not so large an average sum per member. In those societies members who allow their subscriptions to lapse lose everything.

THE BENEFIT FUND.

It is entirely opposed to all reason that in a 'Benefit' Society any section of its members should profit by the misfortunes of others. It cannot possibly occur in our Society. The 'United,' from its commencement, has credited to each member his proportion of the year's working. Thus, some have now to their credit in the books of the Society over £100, to which is added yearly 3 per cent. interest. Each member has to contribute his proportion towards the Sick Fund of the current year, after which the balance is placed to his own account. A yearly balance-sheet is issued to each member, so that he knows from year to year exactly what funds he has to his credit. And in the event of his decease, his nominee can know at a glance what that balance is. When a member reaches the age of seventy years he can withdraw his balance in one sum, or in smaller amounts. Lapsed members, i.e, members whose accounts have been closed through ceasing to pay their contributions, can obtain their balances upon attaining the age of sixty years, the sum paid to them then being the amount standing to their credit when they became lapsed members.

THE BENEVOLENT FUND

is provided for by the contributions of life and honorary members, and by a small annual sum from each benefit member. This fund provides for all members after they have passed the age of seventy years. It also assists members in cases of accident or other peculiar forms of distress, and the widows of such members who die in needy circumstances. The Committee appeal urgently for more honorary and life members so that this fund may be increased in proportion to the number of benefit members. With one thousand benefit members, the number of honorary and life members should be at least one hundred.

THE CONVALESCENT FUND

is a purely voluntary one on the part of the benefit members. It was instituted through the kindness, liberality, and business forethought of Mr. N. N. Sherwood. Its funds are devoted to assisting members by a grant, so that they can obtain a change of air during convalescence. In the case of young gardeners who may be in lodgings during sickness, it is an important aid to their recovery.

THE MANAGEMENT FUND

is directed to the working expenses of the Society. During 1901, with 904 benefit members, it amounted to £163 14*s.* 10*d*, an average of about 3*s.* 7*d.* per member, towards which each member contributes annually the sum of 2*s.* 6*d.*; the balance being made up from the interest of monies standing to the credit of the lapsed members, and by the proceeds from advertisements in the Annual Report.

The committee considers that this Society in a measure fulfils what has been often urged upon the community at large, viz., the provision of 'old-age pensions.' It is a Self-help Society, its rules being framed so that the utmost possible return may be made to every member belonging to it, and in proportion to the number of years each one has contributed. The Secretary is always willing to supply any information as to scales of contribution, &c. The funds are invested in approved trustees' stocks, which yield on an average about 3 per cent."

MANCHESTER AND NORTH OF ENGLAND ORCHID.

OCTOBER 17.—O. O. WRIGLEY, Esq., Bury (gr., Mr. Rogers), staged a group of plants for which a Silver Medal was awarded. The group consisted of fine plants, and good forms of Dendrobium Phalænopsis var. Schroderianum, D. formosum var. giganteum, and the pure white form of D. Phalænopsis; Cattleya × Mantini var. nobilior, a very handsome dark form; a beautiful form of Lælia Perrini was also worthy of note. Other plants in this group were some well-grown pieces of Odontoglossum grande, Lælia pumila, and various forms of Cattleya labiata.

Mr. J. CYPHER, Cheltenham, staged a good group of plants, among which were several good varieties of hybrid Cypripediums, Dendrobiums, and hybrid Cattleyas (Bronze Medal).

Mr. W. B. UPJOHN, Worsley, exhibited a well-grown plant of Cypripedium × conspicuum. S. GRATRIX, Esq., Whalley Range (gr., Mr. Cypher), staged a few nice plants, and Cypripedium × "Mary Ameliæ," a good cross between (C. Lord Derby × C. bellatulum), received a First-class Certificate; Cypripedium × Miss Balfour (C. × Chapmani × C. × William Lloyd), received a similar award; and an Award of Merit was voted to an exceptionally dark form of Dendrobium Phalænopsis var. Schroderianum, called rubescens.

T. BAXTER, Esq., Morecambe (gr., Mr. Roberts), exhibited a good spotted form of Odontoglossum crispum, named Poultoni. The markings were pale lilac and very pronounced (First-Class Certificate).

A. WARBURTON, Esq., Haslingden, sent a very handsome form of Cypripedium × microchilum, called Vine House var., differing from the type, inasmuch as the lip or pouch, from which the plant takes its specific name is of the size of an ordinary form of Cypripedium niveum, one of its parents (Award of Merit).

Mr. W. HOLMES, Timperley, gained an award of Merit for his hybrid Cymbidium × Holmesii, a cross between C. Mastersii × C. giganteum. *P. W.*

EPPING FOREST FUNGUS FORAY

THE annual Fungus Foray of the Essex Field Club was held in Epping Forest on October 17 and 18 with somewhat unfavourable weather, and consequently sparse attendance. Fungi were discovered to be unusually restricted in number, but the foray was more successful than usual, if success is to be measured by the number of species found which were new to the records of the forest. The species found and collected were determined by Dr. M. C. Cooke and Mr. George Massee. There was one peculiarity which may be noted—as such facts may ultimately prove to be of service—that some of the usually common species were almost or entirely absent, while others were extremely common. It was remarkable to observe the profusion of Amanita phalloides, Collybia butyracea, Collybia maculata, Lactarius turpis, and Marasmius peronatus; and equally strange that only one specimen of Cantharellus cibarius, was seen, and not one of Cantharellus aurantiacus, only one of Amanita rubescens, hardly any species of Tricholoma, only two or three specimens of the Rhodosporæ, very few Boleti, including one Boletus edulis, and two of Boletus scaber, usually so common. One solitary specimen of Collybia dryophila, one Psilocybe semilanceata, and very few Cortinarii, or Hygrophori. Mycologists who have been accustomed to rambles in the Forest, will realise at once the singularity of the fungus flora of the year.

The additions to the Forest fungi were as follows:—Tricholoma stans, Clitocybe tuba, Collybia stridula, Collybia tenacella, Mycena flavo-alba, Mycena æstites, Pholiota aurivella, Hebeloma petiginosa, Psalliota comptulus, Russula ochracea, Russula nitida, Marasmius Vaillanti, Marasmius sclerotipes, Fomes connatus, Helotium fructigenum, and Daldinia concentrica. In addition to which, Gomphidius gracilis was collected in the forest, a fortnight previously, during an excursion of the South London Field Club; thus making an addition to the Forest fungi of seventeen species.

The total number determined on the 17th and 18th, was 133, which is an excess of the number usually found at a Forest foray. The meeting was held in the evening, after tea, in the hall of the King's Oak, where the specimens were exhibited. *M. C. Cooke.*

WORCESTER ORCHARDS.

SUCCESSFUL EXHIBITION.

THE second exhibition under the auspices of the Worcestershire County Council of agricultural and horticultural produce was opened at the Shire Hall, Worcester, on Saturday last. It had been originally intended to hold the exhibitions every three years, but so much profit was derived from the first held in 1900, and so much disappointment was expressed that there was no exhibition in 1901, that the intended interval was curtailed. The bulk of the fruit exhibits was not so large as in 1900, but the quality was fairly good. The roots were better, both in quality and quantity. The exhibition was well arranged from an educational point of view, so as to indicate the effect of soil upon size, colour, and flavour of fruit and produce.

Mr. E. V. V. Wheeler, Chairman of the Agricultural Sub-Committee of the Worcestershire County Council, presided at the opening ceremony, which was performed by Sir Thomas Elliott, Secretary of the Board of Agriculture. Sir Thomas Elliott said his Board were willing to do what they could for agriculture, but explained that much of the work was, and could best be done by local agencies, such as county councils and agricultural societies, who were helped by voluntary workers with intimate knowledge of local needs. Pointing to successful results of the work in Worcestershire, he contrasted the 19,300 acres under orchard cultivation in the county in 1893, with the 21,897 acres under such cultivation now. The increase was the largest in that respect in any county. In the same period the acreage under small-fruit cultivation had increased from 2400 to 4100, the increase being larger than the absolute acreage under such cultivation in any other county in the South or West of England. The same results would be found in regard to market gardens.

THE HORTICULTURAL CLUB.

THE first dinner of this Club after the summer recess was held at the Hotel Windsor on Tuesday, the 21st inst., under the Presidency of Sir Jno. D. Llewelyn, Bart., and was very well attended, some thirty members and friends being present. An interesting and instructive paper was read by Mr. Alfred T. Rivers, of Sawbridgeworth, who made some carefully considered remarks on "Pot Fruit-trees for Amateurs." Inasmuch as it

was established that good crops of Apples, Pears, Plums, Cherries, Peaches, Nectarines, and even Apricots, can be obtained under these quite cold conditions, which appeal more to amateur capabilities, both the paper and the subsequent discussion are calculated to do much to foment such cultivation wherever a little room for a greenhouse is available. The paper having been read, the subsequent discussion of the numerous points embraced was carried on by such well-known experts as Messrs. Bunyard. Hudson, Pearson, Veitch, Paul, Owen Thomas, T. Walker, the Revs. W. Wilkes, and G. H. Engleheart. Among other things it was pointed out that the feeding-roots of fruit-trees are really annual, i e, the mass of small fibrous ones, as distinct from the thick woody permanent ones from which they emanate. Hence it not only does no harm to remove these when the season's work is done, but in pot culture it is absolutely necessary to report every year, replacing the soil with fresh, top-spit loam, rammed hard, and repotting into pots of same size as previously, or only one size larger. Instructions as to subsequent feeding were given, mulching composts being described, but as the whole paper will eventually appear in the Royal Horticultural Society's *Journal*, we must refer our readers for full details of this and other important, and yet simple, requisites for obtaining satisfactory fruit crops. While quite cold culture, i.e., in absolutely unheated houses, practically glazed sheds was to some extent advocated, the discussion showed that this possibility was somewhat dependent upon local climate, the conditions of not only frost, but fog, and that in order to be perfectly secure against damage by either at the critical period of flowering, the provision of a single row of pipes and a small boiler capable of just excluding frost was a wise precaution. Forcing was altogether excluded from the purviews of the paper, the chief idea being to provide conditions which should just rectify the drawbacks presented by our climate as compared with that of other more favourably situated countries. The great importance of rain-water was much dwelt upon, and the construction of tanks or other receptacles for collecting it inside the house, strongly advocated. Pruning, it need hardly be said, was emphasised as an essential operation, and a number of photographs exhibited by Mr. Rivers of fruit trees grown as advocated, evoked much admiration by the symmetry of the trees themselves, to say nothing of the abundance of bloom with which they were mostly covered. *C. T. D.*

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT ASSOCIATION.

More than 100 members assembled at the last meeting of the above Association to hear Mr. G. Gordon, V.M.H., deliver a lecture on "Beautiful Flowering Trees and Shrubs." Time did not suffice to give more than a running commentary on a fine series of photographs, shown by limelight, illustrating some typical specimens of the double-flowered Peach, and Almond, Magnolia, Cherry, Plum, Quince, Pear, Thorn, Laburnum, Genista, Berberis, Lilac, Deutzia, Viburnum, Exochorda, Spiræa, Staphylia Hydrangea, Horse-Chestnut, Catalpa, Wistaria, Azalea, Heath, Andromeda, Rhododendron, &c. The exhibits were interesting, the honorary ones were: a basket of Princess of Wales Violets, retarded Potatos (illustrating the method of obtaining young Potatos all the year round); also a dish of the fruits of Psidium Cattleyanum (Guava), suitable for dessert or making jelly, by Mr. G. Stanton, gr., Park Place, Henley-on-Thames; and a collection of Sweet Peas, by Mr. D. Ager, gr. to Milton Bode, Esq., Caversham. The subject for the meeting on Oct. 27 will be "Sweet Peas," by Mr. House, Westbury-on-Trym.

Obituary.

A. J. Guyott.—We announce with regret the death of Alfred James Guyott, late head gardener at Cowarne Court, Herefordshire, at the Hereford General Hospital, after a painful illness, at the age of fifty-five. The deceased had been gardener to Colonel Robert Bournes at that place for the past eleven years, and previously to that he had held a similar post at Bredenbury, Herefordshire, with W. H. Barneby, Esq., for more than thirteen years. He gained his experience in the celebrated gardens of Sir Charles Fredrick, Shawford, Winchester; at Oakley Hall, Hants; Henham Hall, Suffolk; and at Clumber. He was very successful in the cultivation of flowers, fruit, and vegetables, and was noted for Chrysanthemums, which he brought to great perfection, and raised several seedlings, one of which was named after himself. The Grapes at Cowarne were examples of good cultivation; the carpet-bedding was well known all over the country. He had superintended the planting of many fine Conifers on both the Bredenbury and Cowarne estates, which has done much to add to the beauty of both places. He leaves a wife and seven children to mourn his loss, and three of his sons are following their father's business.

Allan Calder.—It is with much regret that we announce the death of Mr. Allan Calder, head gardener at Vaynol, Bangor, where he has been engaged for many years. Mr. Calder was a very old correspondent to the *Gardeners' Chronicle*, and was much respected by many horticulturists.

MARKETS.

COVENT GARDEN, Oct. 23.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. Ed.]

Cut Flowers, &c.—Average Wholesale Prices.

	s.d.	s.d.
Arums, per dozen	4 0	5 0
Asparagus Fern, per bunch ...	0 6	1 6
Asters, per dozen bunches ...	2 0	8 0
Bouvardias, per dozen bunches.	6 0	8 0
Carnations, bnch.	1 0	2 0
Chrysanthemum, various, per doz. bunches ...	3 0	24 0
Coreopsis, per doz bunches ...	0 6	1 0
Dahlias, doz. bun.	3 0	6 0
Eucharis, p. doz.	2 0	3 0
French Fern, per doz. bunches ...	0 4	0 6
Gaillardia, dozen bunches ...	1 0	1 6
Gardenias, per box	1 6	2 0
Gladiolus Brenchleyensis, per bunch... ...	2 0	3 0
Honesty, bunch .	1 6	2 0
Lilium album, doz. blooms	1 6	2 6
— Harrisii, bun.	4 0	5 0
Lobelia, Red, per dozen bunches	4 0	6 0
Lily of the Valley, doz. bun. ...	6 0	18 0
Maidenhair Fern, doz. bunches ...	4 0	6 0
Marguerites, Yellow, p. dz. bchs.	1 6	2 0
Michaelmas Daisies, per dz. bunches ...	4 0	6 0
Mignonette, per doz. bunches ...	1 6	2 6
Mimosa, p. bunch	1 0	1 3
Pelargoniums, Scarlet, dozen bunches... ...	3 0	4 0
Phlox, per dozen bunches ...	4 0	6 0
Roses, Mermet, p. bunch... ...	1 6	2 6
— red, p. dozen bunches ...	3 0	8 0
— various, doz. bunches ...	3 0	18 0
Smilax, per doz. trails	1 6	2 6
Stephanotis, per dozen	2 0	3 0
Tuberoses, per doz. blooms ...	0 3	0 4
Violets, per dozen bunches ...	1 3	2 0
— Parma, p.bch.	1 6	2 6
Winter Cherries, per dz. bunches	4 0	8 0

Plants in Pots, &c.—Average Wholesale Prices.

	s.d.	s.d.
Adiantums, per dozen	4 0	8 0
Aralias, per doz.	4 0	8 0
Arbor Vitæ, per dozen	9 0	18 0
Aspidistras, doz.	18 0	36 0
Aucubas, per doz.	4 0	8 0
Campanula, per dozen	2 0	6 0
Chrysanthemum, various	3 0	18 0
Coleus, per dozen	3 0	4 0
Crotons, per doz.	12 0	24 0
Dracænas, var., per dozen ...	12 0	30 0
Evergreen, per dozen	3 0	18 0
Ericas, per dozen	9 0	12 0
Euonymus, vars., per dozen ...	4 0	6 0
Ferns in variety, per dozen ...	4 0	30 0
Ficus elastica, per dozen	9 0	24 0
Margeurites, per dozen	5 0	8 0
Palms, various, each	2 0	20 0
Primulus, p. doz.	4 0	6 0
Pteris tremula, per dozen	4 0	8 0
— Wimsetti, per dozen	4 0	8 0
— major, per dz.	4 0	8 0
Solanums, per dozen	8 0	12 0

Vegetables.—Average Wholesale Prices.

	s.d.	s.d.
Artichokes, Globe, per dozen ...	3 0	4 0
— Jerusalem, per sieve ...	1 6	—
Beans, dwarf, per lb.	0 6	0 10
— Scarlets. bus.	0 6	1 0
Beetroots, bushel	1 0	1 6
Brussels Sprouts, per sieve ...	1 0	1 6
Cabbage, p. tally	1 6	3 0
Carrots, per doz. bunches ..	1 6	2 0
— bag (washed).	2 6	2 9
Cauliflowers, per dozen	0 6	1 6
Celeriac, per doz.	1 6	—
Celery, per dozen bundles... ...	10 0	12 0
Cress, per dozen punnets ..	1 3	
Cucumbers, doz.	2 0	3 0
Endive, new English, per score .	1 0	1 6
Garlic, per lb. ...	0 3	—
Horseradish, foreign, p. bunch	1 3	1 6
Leeks, 12 bunches	1 0	1 6
Lettuces, Cos, per score	1 6	2 9
—. Cabbage, p.dz.	0 9	1 0
Mint, per dozen bunches... ...	1 0	—
Mushrooms, house, per lb.	1 6	2 0
Onions, new, green, doz. bunches	1 6	2 0
— bag	3 0	3 6
— foreign, case	5 6	6 0
— picklers, per sieve	2 0	3 0
Parsley, doz. bun.	1 0	1 6
— sieve ...	0 6	0 9
Parsnips, per bag	2 6	3 0
Potatos, per ton	65 0	100 0
Radishes, p. doz. bunches ...	1 0	1 3
Salad, small, punnets, per doz....	1 3	—
Shallots, per doz.	0 1½	—
Spinach, English, bushel	1 0	1 6
Tomatos, English, per doz. lb.	3 6	4 6
— Cavary Deeps	3 0	
— Channel Ilds. per lb. ...	0 3	0 3½
Turnips, per dozen... ...	2 0	2 6
— bags	2 0	2 6
Watercress, per doz. bunches...	0 3	0 6

Fruit.—Average Wholesale Prices.

	s.d.	s.d.
Apples, English, per sieve ...	2 0	4 0
— Blenheims, per bushel ...	5 0	7 0
— Cox's Orange Pippin, sieve.	10 0	7 0
— King's, bush.	6 0	7 0
— Suffields and various cookers, per bush.	3 6	7 0
— American, bls.	12 0	20 0
Bananas, bunch	6 0	10 0
— loose, dozen	1 0	1 6
Blackberries, peck	2 6	2 3
Cobnuts, per lb. .	0 3	0 3¼
Cranberries, American, qt.	0 5	—
— case	10	—
Figs, per dozen ...	0 9	1 6
— foreign, box or case	0 9	1 0
Grapes, new Hamburgh, per lb.	1 0	1 6
— — B., per lb.	0 4	0 6
— Belgians, p.lb.	0 5	0 10
— Alicante, lb. .	0 6	0 9
— Colmars, lb. .	0 10	1 6
— Muscats, A., lb.	3 0	4 0
— — B., per lb.	0 2	0 3
Lemons, per case	18 6	—
Melons, English, each	1 0	2 0
Oranges, case.....	8 6	11 6
Peaches, A., doz.	9 0	12 0
— B., per dozen	2 0	5 0
Pears, per sieve...	1 6	4 0
— stewing, per basket ...	3 6	—
Pines, each ...	3 0	4 0
Plums, sieve ...	1 6	6 0
Walnuts Eng., bs.	6 0	7 0
— foreign, bags.	7 0	—

Remarks.—All Apples are now easier in price, common Apples ranging from 2*s.* to 3*s.* 6*d.* per bushel. Plums, Sewetzchen, fetch 1*s.* 6*d.* to 2*s.*; and Bohemians ditto, 2*s.* to 2*s.* 6*d.* Some Chow-chows, per case, fetch 5*s.* to 6*s.*; Persimmons, 1*s.* 6*d.* to 2*s.*; Corn-cobs, per dozen, 1*s.* to 1*s.* 3*d.*; Sweet Potatos, per cwt., 18*s.*; Cardons, each, 2*s.*; home-grown Melons to be had at almost any price. Marrows and Runner Beans are nearly over; the Dwarf Beans quoted are house-grown. Canary Tomatos are now coming in; one vessel from America now due with 28,000 barrels of Apples on board.

Potatos.

Various samples, 65*s.* to 90*s.* per ton; Dunbars, red soil, 100*s.* *John Bath, 32 & 34, Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

Glasgow, *October* 22.—The following are the averages of the prices during the past week:—Apples, Baldwin (States), 17*s.* to 20*s.* per barrel; do., Canadian, 15*s.* to 18*s.* do.; do., Kings, 18*s.* to 28*s.* do.; do., Guernseys, clear fruit, 15*s.* to 17*s.* do.; do., slightly spotted, 8*s.* to 11*s.* do.; do., various high-class red, 14*s.* to 18*s.* do.; do., green, 12*s.* to 16*s.* do.; Pears, Californian, Duchess and Clairgeau, 4*s.* to 6*s.* per case; do., Calabars, 8*s.* do.; Grapes, English, 1*s.* to 2*s.* per lb.; do., Scotch, 9*d.* to 2*s.* 6*d.* do.; do., Almeira, 10*s.* to 18*s.* per barrel; Pomegranates, 5*s.* to 6*s.* per case; Naples Lemons, 15*s.* to 20*s.* per box; Mushrooms, 2*s.* per lb.; Tomatos, Scotch, 6*d.* to 8*d.* per lb.; do., English, 3*d.* to 6*d.* do.; do., Guernsey, 5*d.* to 6*d.* do.; Onions, Valencia, 5*s.* to 7*s.* per cwt.

Liverpool, *October* 22.—*Wholesale Vegetable Market.*—Potatos, per cwt.: Main Crop, 3*s.* to 3*s.* 9*d.*: Up-to-Date, 2*s.* 2*d.* to 2*s.* 8*d.*; Bruce, 2*s.* 3*d.* to 2*s.* 9*d.*; Turnips, 5*d.* to 7*d.* per twelve bunches; Carrots, 5*d.* to 7*d.* do., do., 2*s.* 9*d.* to 3*s.* per cwt. *St. Johns:* Potatos, 1*s.* per peck; Grapes, English, 1*s* 3*d.* to 3*s.* per lb.; do., foreign, 4*d.* to 6*d.* do.; Pines, English, 5*s.* each; Apples, 3*d.* per lb.; Pears, 3*d.* do.; Tomatos, 6*d.* do.; Damsons, 5*d.* do.; Cucumbers, 3*d.* to 4*d.* each; Mushrooms, 8*d.* per lb. *Birkenhead:* Potatos, 8*d.* to 10*d.* per peck; Cucumbers, 2*d.* to 4*d.* each; Grapes, English, 1*s.* 6*d.* to 3*s.* 6*d.* per lb.; per lb.; do., foreign, 4*d.* to 8*d.* do.; Mushrooms, 1*s.* do.; Filberts, 8*d.* do

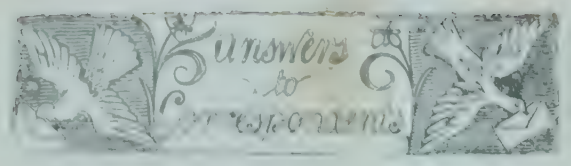
SEEDS.

London: *October* 22.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report increasing activity in the Seed trade. With regard to the leading article of Red Clover-seed, the shortage of this year's crop the world over has now become generally recognised, and a brisk speculative business therein has consequently resulted. Values show an advance on the week of fully £4 per ton. Meantime, full prices are asked for Alsyke, White, and Trefoil Seeds; whilst quotations for Italian and perennial Ryegrasses still tend upwards. There is no alteration in either Mustard or Rapeseed. Lucerne, Timothy, and Cocksfoot remain steady. Canary-seed is strong, but Hempseed is dull. Blue Peas and Haricot Beans being in moderate supply, and brisk consumptive demand favours sellers.

CORN.

Average Prices of British Corn (per imperial qr.), for the week ending Oct. 18, 1902, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1901.	1902.	Difference.
	s. d.	s. d.	s. d.
Wheat	25 10	25 1	— 0 9
Barley	26 8	26 1	— 0 7
Oats	17 8	17 0	— 0 8



AN UNFRUITFUL FIG-TREE: *Figtree.* It is the lack of heat which does not allow the fruit to ripen; but if you can remove the tree to a south wall, and fasten the branches and shoots close to the face of the same, keeping the bearing shoots about 10 inches apart, the tree will bear fruits that will ripen perfectly. Fig-trees in some parts of the country should have protection against frost.

BAMBUSA GRACILIS: *J. R., Paignton.* The same as Thamnocalamus Falconeri. It grows to 20 feet or more in height. It is only hardy in the mildest parts of England and Ireland. Frost injures the tops of the tall stems, and then a crop of small canes grow all around, having a height of 6 to 8 feet.

BEGONIAS: *A. B.* Your plants are affected with mite. Steep the leaves for a short time in tobacco-water.

BOOKS: *W. B. W.* We were not aware of Decaisne's and Hemsley's *Handbook of Hardy Trees and Shrubs* being out of print. It may doubtless be met with at the secondhand booksellers in Charing Cross Road and elsewhere. Another useful book, giving those particulars you desire, viz., the height to which the various species of trees and shrubs grow is *Trees and Shrubs for English Plantations,* by Augustus Mongredien. (London: John Murray, Albemarle Street, Piccadilly, 1870).—*Text Book of Botany: R. de B.* "A Student's Text Book of Botany," by Sydney H. Vines. New edition published by Swan Sonnenschein & Co., London.—*B., Reform Club. Fruit Culture for Amateurs,* 1898. By S. T. Wright, Chiswick. London: Upcott Gill, 170, Strand, W.C. Price, 3*s.* 9*d.* per post. *Fruit Culture,* by J. Cheal. London: G. Bell & Sons, York Street, Covent Garden, W.C. Price 2*s.* 6*d.*

BROWN POWDER ON THE LEAVES OF VINES: *J. Macdonald.* Affected by a species of Fumago; collect and burn all the affected leaves, and when the Grapes that may be uninjured are cut, clean the Vines, burning all loose bark, prunings, &c., and dress with the Bordeaux Mixture. Next year's new foliage should also be sprayed with the same mixture.

CARPENTERIA CALIFORNICA: *J. R., Paignton.* Propagation by seeds, or cuttings struck cool.

CHRYSANTHEMUM PLANTS: *G. J., Lincoln.* The frequency of the dose must depend upon the strength of the medicine. Liquid-manure or manure-water varies exceedingly in strength, and whilst a weak or diluted sample may be afforded the plants frequently without nauseating them, if a stronger liquid be used then watering with clear water should be made between the applications. Many growers who use weak manure-water from the farm-yard find it pays them to give it to the plants each time the roots require water, during the period when the buds are swelling, but not after the petals commence to expand. Others afford natural manure-water at one time, and an artificial manure at another. It is important that the surface of the soil be not allowed to get coated and blocked by manure and soot, and thus prevent aëration.

GRASS IN THE FOREST OF DEAN: *J. T. S.* A viviparous form of Agrostis alba.

GRUBS ON FERN ROOTS: *W. R.* Grubs of one of the common weevils; they are very destructive. Try to trap them with slices of Potato or Carrot.

MUSCAT OF ALEXANDRIA AND BLACK HAMBURGH VINES: *Pinkie.* You will be doing quite right in concreting the border at the bottom and sides if you provide suitable outlet drains at the lowest points. The total depth of soil should not exceed 2 feet if the latter consists of very retentive loam, and 2½ feet if light. The drainage will occupy about 6 inches, and may consist of lumps of chalk, brick-ends, rough stones, and the like; channels may be made in the concrete, or drain-pipes used beneath these materials, but if the bottom has a slope of ½-inch in a foot run, it is enough without drain-pipe. Use sods to cover the drainage material, placing the grassy side downwards. The border should be raised a foot above the surrounding level, and be given a slope to the south. This is the more necessary in low-lying gardens, and on cold retentive soils. To have Muscats or other Vines growing solely in inside borders, is necessary only in such sites and soils; but where skilled labour is not at hand, and the soil is not too cold, wet, or heavy, a border inside and outside is to be preferred to an inside one. Vines in inside borders are like plants in pots, and require attention to an almost equal degree, and according to A. F. Barron, in his book, *Vines and Vine Culture,* they only are liable to be attacked by Phylloxera. Obtain a loamy soil, calcareous if possible from a pasture sheep-run or the like, dig it 3 to 4 inches deep, or as deep as the grass roots go, doing this in dry weather. Chop this roughly into pieces and mix with 6 cubic yards 1 cubic yard of old plaster, charcoal, charred soil, wood ashes, and 2 cwt. of ground bones. This for loam that is not calcareous and of medium texture; if calcareous or sandy, less lime-rubble or plaster may be used. If the loam is of poor quality stable-manure may be added, but in no great quantity. If pasture loam cannot be obtained, choose open fresh soil and add the other substances to make it suitable. Thompson's Vine-manure should be used in all Vine borders. Scan our calendar for "Fruits under Glass" for this and previous weeks. Two years' old "cutbacks" may be planted either now or after they have made new growth under almost natural conditions under glass; or yearlings struck from eyes early in January and grown till they have made 2 feet of growth may be planted, say, in May or June. Pick out all carpenters' shavings and bits of wood from the lime-rubbish. The cutback Vines will have been cut back almost to the bottom bud. Do not pinch the points of lateral shoots till the second or third year.

NAMES OF FRUITS, ETC.: *We are desirous to oblige our correspondents as far as we can, but the task is becoming too costly and too time-consuming for us to continue it without some restrictions. Correspondents should observe the rule that* **not more than six varieties** *be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. The fruits should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.*—*C. Best.* 1, King Pippin; 2, Cockle Pippin; 3, Lady Henniker; 4, Claygate Pearmain; 5, not recognised; 6, Deux Ans; 7, Blenheim Orange; 8, Royal Russet; 9, Northern Greening; 10, Waltham Abbey.—*G. F. T.* 1, Fondante d'Automne; 2, not recognised; 3, Doyenné Grise; 4, Beurré Rance; Apple Cockle Pippin.—*N. S.* 1, Apple from 100-year-old tree, not recognised; 2, Yorkshire Beauty, syn. Councillor.—*E. L., Harlow.* Too small to be recognised.—*F. G. C.* Wellington.—*Walter Cook.* Please send larger fruits; impossible to name such specimens with any certainty.—*D. & Co.* Apple Hambling's Seedling.—*T. N.* 1, Lane's Prince Albert; 2 and 3, Sturmer Pippin; 4, Keswick Codlin; 5, Emperor Alexander; 6 and 9, Too small for recognition; 7, Lemon Pippin.—*Joyce.* Apple, Williams' Favourite; Plum, smashed.—*A. W. Coulloch.* Pear, Brockworth Park.—*C. Y.* Beurré Capiaumont, dessert.—*W. H. E.* 1, Mère de Ménage; 2, Winter Greening; 3, Round Winter Nonsuch; 4, Beurré Clairgeau; 5, Winter Nelis; 6, Smashed.—*F. S.* 1, Beurré Hardy; 2, Autumn Nelis; 3, Duchess d'Angoulême; 4, Quite rotten; 5, King of Pippins; 6, Striped Beefing.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. B.* 1, Solidago multiradiata; 2, S. virga aurea nana; 3, Hieracium species; 4, Scabiosa elata; 5, Retinospora plumosa, a sport from Cupressus pisifera; 6, Astilbe rivularis.—*K. P.* 1, Solidago Shortii var.; 2, Helenium autumnale var. We cannot say which, not knowing the height; 3, Aster Novæ Angliæ pulchellus; 4, A. Mrs. Peters; 5, A. Novi-Belgii formosissimus; 6, A. lævis variety.—*A. F. W.* We are unable to name varieties of tuberous-rooted Begonias. *Max Leichtlin.* Lavatera cachemiriana, the others later on.—*W. S.* 1, Justitia carnea; 2, Maxillaria picta; 3, Acampe multiflora.—*M.* 1, Cirrhopetalum appendiculatum; 2, Dendrobium bicameratum.—*Young Gardener.* 1, Cypripedium callosum; 2, Octomeria Loddigesii; 3, Adiantum decorum; 4, A. cuneatum elegans; 5, Nepenthes Rafflesiana, or a hybrid of it closely allied. The spots on the leaves were probably caused by painting of the house. In a warm, moist, shady house such as you describe, the damage must have been caused by a check, or change from the proper conditions, of some kind.—*J. K.* 1, Statice latifolia; 2, Staphylea pinnata; 3, Silphium [species; 4, Cryptomeria elegans, a variety of C. japonica. *Anxious to know.* 1, Picea Morinda; 2, Liriodendron tulipifera; 3, Tsuga canadensis; 4, Abies grandis; 5, Cut-leaved Beech; 6, Populus alba; 7, Cupressus nootkatensis.—*Cockle.* Both very good varieties of Odontoglossum crispum.—*H. J. K.* Cienkowskia Kirkii, a Zingiberaceous plant, figured in *Bot. Mag.,* t. 5994.—*W. F.* 1, Cornus mas variegata; 2, Pteris cretica albo-lineata; 3, Polystichum angulare; 4, Linaria reticulata.—*J. P.* Justicia speciosa.

NOTICE TO QUIT SERVICE: *J. Butt.* Unless there are grounds for what amounts to instant dismissal, you are entitled to one month's notice. We would advise you to con the answer given in our last issue to an enquirer in regard to a similar case.

PÆONY-PODS OPENING: *A. B. W.* There is nothing unusual about this.

PITTOSPORUM MAYI: *J. P., Paignton.* There is no other name for this plant. To propagate most Pittosporums, sow seeds, or select fully ripe shoots of the current year, of which the end bud is developed; cut through at a joint, and insert in peat soil, to which are added two-thirds of sharp sand, and place in a house having a temperature of 50° Fahr., affording a moderate amount of moisture.

SOIL: *A. J. Jones.* A stiff clayey loam, with probably a considerable portion of iron; mixed with sand, leaf-mould and half-decayed stable-manure, crushed bones, and wood-ashes with a little lime rubble, it might make a good compost. Read answer to *Pinkie* in this column on how to make a Vine border.

TOMATO SPOT: *A. F. T.* Yes, all the fruits are affected alike.

WALNUTS AND BEECH MAST: *Hermon Paul.* The former should be layered in fine soil or sand, so as to form a bed not more than 6 inches high, and the latter spread thinly in a similar bed of half the height named, both being covered with garden frames to preserve the seeds from rain and frost, air being given when there is no hard frost. Mice and rats must be trapped. Smaller quantities may be put into layers alternately with earth or sand in pots, and the pots stood in a cold pit or frame, or in the open, plunged in tree-leaves, and covered with a tile or roofings-late. Water is seldom, if ever, required before germination takes place.

COMMUNICATIONS RECEIVED.—G. Chidlow—K. M. E.—Sir G K.—M. Fiet Groningen.—H. J. E.—S. L. & Co. D. R. W.—H H. C., many thanks—G. W.—E. C. R.—S. C.—N. M. W.—A. D. Michael—T. E. Boyce—B. Hartland—Prof. Cogniaux—J. C.—F. F. A.—G. E. L.—G. L. (photo, with thanks)—F. W. B.—J. B. C. (photo, with thanks)—A. C. B. (photo, with thanks).—Hutchinson & Co.—A. R. G.—M. Buysman, Middleburg—G. B. & Co.—S. C.—C. N.—J. F. McL.—A. A. P.—Cluny Hill Hydropathic.—Miss M. J. Wells.—I. B.—C. Best.—Fahey.—A. E. A.—C. S.—W. P.—W. E. G.—W. B. A.—Orchid.—H. Southcott.—D. B.—B. Hartland T. C.—P. Barr.—J O'B.—W. P. R.—J. R. J.—H. T. S.—S. A.—W. H. Y.—W Smythe.—E. J.

(*For Weather, see p. viii.*)

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"SPORTS" AND BUD-VARIATIONS AS FACTORS IN EVOLUTION.

THE increasing tendency of scientific botanists to attach much greater importance to abnormalities in plants than was the custom in less recent times, when they were simply classed as "monstrosities," and severely left alone, is strongly evidenced by the publication of *The Theory of Mutation*, by Prof. Hugo de Vries, in which he not only strongly advocates the theory that species may owe their origin to such sudden sports, but produces considerable confirmatory evidence in support of it. In this connection, however, both in the case of Professor de Vries and others who have pursued, and are pursuing, the same line of research, it is remarkable that a class of plants which have undoubtedly produced more distinct, spontaneous, i.e., wild varieties, than any other, and these of peculiarly distinct and, what is more to the point, constant types, appears to be entirely ignored. I allude to wild Fern sports, and particularly to the very large number which have originated in the British Isles.

It may be surmised that as a specialist in this particular line, I may take an exaggerated view of the matter, but this question can be easily disposed of by anyone who will take the trouble to study either a good collection of such forms, or such a published descriptive list as was compiled by Mr. E. J. Lowe about a decade ago. In that list, the general accuracy of which is recognised by all *connoisseurs*, there are no fewer than eleven hundred distinct abnormal forms, the great bulk of which have sprung from nine out of some forty odd indigenous species in Great Britain, and the whole of this number were found as wild sports, usually solitary, among the common or normal ones. Nor must this large number be assumed as in any way exhaustive, as no account is involved therein of duplicate, triplicate, or even more "finds" which have been made of forms so nearly identical, as to preclude the application of special names, and which consequently figure in that book as the same form found by different persons, despite wide differences of locality, which imply a separate origin. Every successful Fern-hunter, too, will be able to show "finds" of his own, which, though possibly of the mere "souvenir" or sub-varietal form, which figure in no list but the owner's, are nevertheless qualified to figure in the category of "sports," and often contain within themselves a power of developing progeny of a far more marked character, as well as the parental type. Could we, therefore, collect evidence of all the "wild" finds of the past half-century, during which this quest has been the favourite hobby of many people, it is probably within the mark to estimate their number at 2000, rather than that cited above. We have, therefore, to compare such a list with that which can be compiled of any other equal range of plants in the world, to at once establish our claim for superiority of varietal capacity in wild Ferns, as compared with that in any phanerogams.

Now that the study of the origin of species is leading more and more to the conclusion that "sports" (i.e., more or less marked and sudden departures from the normal form, accompanied with more or less fixed character when reproduced by spore or seed) may have played an important *rôle* in the differentiation of plant-types, instead of being merely negligeable accidents, it is a pity that one of the richest fields for investigation should be thus ignored. It is quite true that we cannot point (with one or two exceptions, which I will come to presently) to much definite evidence that these Fern "sports" are capable of asserting themselves specifically, i.e., over wide areas. In the large majority of cases they are found as solitary specimens of their kind, although associated with great numbers of the normal type, a fact which is curious, when considered in conjunction with the faculty most of them possess of reproducing these new types perfectly from their spores, and often in great abundance under culture. In this respect, indeed, as I have frequently pointed out, they meet every definition of species, while differing in many cases far more from the normal and from each other than do many accepted species. Should therefore any one of these be able to assert itself sufficiently to spread and hold its own, or even oust the normal, it would acquire as much right to the rank of a species as any other distinct type into which a genus may be divided, owing to precisely analogous differences of form. I do not here allude to such abnormalities as cresting or tasselling, or even plumose types, for although these originate as wild spontaneous sports like the others, and may come perfectly true from spores, such characters have so far appeared in no recognised specific form; and it is by no means desirable to complicate the vexed question of what constitutes a species by introducing new and unnecessary factors. This at once disposes of a very large number of the wild sports, and so narrows the field considerably. We are, however, entitled to assume that in any case the percentage or permillage of such sports as have originated species would be very small; they vary indiscriminately, and although many are found in the shape of robust, well established plants of considerable age, it is clear from the general absence of associated typical seedlings that in some way they are handicapped in the juvenile stage; while, on the other hand, a good number have obviously been rescued by the finder from impending extinction by their robuster neighbours. One instance, however, where an abnormal type has managed to spread and form an extensive colony, to do which it must undoubtedly have ousted the normal type, is sufficient to establish the possibility we have in view, and this instance undoubtedly exists in a form of Asplenium Adiantum nigrum, which has formed such a colony on Dartmoor. The writer discovered this (var. caudifolium) nearly 20 years ago upon a long sunken stone dyke, where many hundreds of plants were congregated, covering many square yards of the dyke, to the utter exclusion of the normal form, which was plentiful outside this area. The variety is distinguished by the apices of the frond and pinnæ being ligulate, the secondary divisions being shortened, and frequently of a yellow colour. The fronds, unlike those of the species, grew flat against the wall, forming a dense mat, and it was this character which suggested itself to me as that which enabled it to spread and choke out the normal as it proceeded. I took some plants, but found it little amenable to cultivation, and though I distributed them freely, I believe all perished, since later I found it impossible to obtain one. Subsequently learning that a friend was visiting Dartmoor, I asked him to visit the spot, and bring me some more, which he did, reporting that the colony was still there, though, of course, he was not in a position to report any extension. Here, then, we have, in my opinion, a definite case, indicating the possibility of a "sport" becoming a species, for there is little doubt in my mind that if this dyke colony had been found abroad by a travelling botanist, a new species would have been in the records instead of a variety. Although I have excluded crested forms from specific claims, I may point out that the recent case of Pteris aquilina cristata, illustrated in the *Gardeners' Chronicle* of September 27, 1902, demonstrates how a variety can establish itself under purely natural conditions, and entirely crowd out the normal form over a considerable area, i.e., the one factor which is vital to the attainment of specific importance. It will be noted, too, that the other varieties figured in conjunction were quite as much differentiated from each other as are some recognised species of Pteris. *Chas. T. Druery, F.L.S., V.M.H.*

THE STRAWBERRY-GRAPE IN CONSTANTINOPLE.

I WAS posting some seeds of the Lucknow Spotted Melon to a correspondent in Constantinople, and I thought I would include some seeds of the Strawberry-Grape in the same parcel. It turned out, however, that it was much like sending coals to Newcastle. My correspondent wrote that this Strawberry-Grape was well known in Constantinople, and that he had in his garden a Vine of this variety which covered a trellis 10 feet high, 30 feet long, and 15 feet wide; and in addition rambled up trees and a neighbour's house. He says that probably it bore something like 2,000 bunches. Its fruit in Constantinople is not much thought of, because in the markets there is a fine, luscious Grape which sells for 3*d.* an "oke" of 3½ lb.!

That country would seem to be a fine place for those fond of Grapes, and others who go in for the Grape-cure. How then did this interesting Vine get to Constantinople, to Italy, to England, and to America? where, I am informed, it is sold on barrows under the name of "Concord" Grape.

Prof. Alph. de Candolle, in his *Origin of Cultivated Plants*, says of the Vine that:—"It is especially in the Pontus, in Armenia, to the south of the Caucasus, and of the Caspian Sea, that it

grows with the luxuriant wildness of a tropical creeper, clinging to tall trees, and producing abundant fruit, without pruning or cultivation." Then he says that "Adolphe Pictet, who has in common with numerous authors, but in a more scientific manner, considered the historical, philological, and even mythological questions, relating to the Vine among ancient peoples, admits that both Semitic and Aryan nations knew the use of wine, so that they may have introduced it into all the countries into which they migrated." Here then perhaps we may trace the origin of this interesting Strawberry-Vine. It may have even been one of the wild Vines of the regions beforementioned, or at any rate an improved variety of one of them, brought about through the seed.

That it is an European or Asiatic variety is supported by the statement in the *Gardeners' Chronicle* recently, that the form of its seed resembles that of European varieties, and not that of the American varieties. It was easy for it to have been transported from Armenia, or adjacent regions, to Constantinople, and thence to Italy. But there is a notion that it came to England from America, and has been considered an American variety.

It would be interesting to find out whether the seeds of the American Grape, known as "Concord," have similar structure to the European varieties. [The Concord is a variety of the American Labrusca. ED.]

There can be no doubt that the Assyrians were perfectly acquainted with the Grape-vine; it is plain enough on their monuments.

To the ancient Egyptians, it must have been one of the commonest trees; their painted walls plainly show this. These Egyptians are now considered to have been an offshoot of the Assyrians. Anyhow, the discovery of cuneiform tablets in Egypt shows that there was intercourse between these two ancient peoples.

Was this very Strawberry-Grape grown in their gardens? Who can tell? *E. Bonavia, M.D., October 5, 1902.*

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT WALTON GRANGE.

THE collection of W. Thompson, Esq., at Stone, Staffordshire, in the care of his excellent gardener, Mr. W. Stevens, was for many years noted for its fine forms of rare varieties of Cattleyas, Lælias, Lælio-Cattleyas, Cypripediums, and other showy Orchids, all of which were grown so as to appear at their best when in flower. Gradually the interest in the Odontoglossums absorbed a great deal of the energies devoted to the culture of other Orchids, and at last the general collection was distributed, and scarcely any but Odontoglossums retained. That the selection was a wise one is proved by the long list of finely-grown and well-flowered novelties in Odontoglossums, and especially in spotted forms of O. crispum, for which Mr. Thompson has gained awards at the Royal Horticultural Society's meetings. Several commodious houses are filled with Odontoglossums, all exhibiting the stamp of excellent culture. Many have flowered, and some are now in flower, but few of the famous spotted forms are now to be seen, though carefully tended specimens of O. crispum Mrs. W. Thompson, O. c. Robert McVittie, O. c. Queen Victoria, O. c. Duchess of York, O. c. Capartianum, O. c. Victoria Regina, O. c. The Earl, and others of the Walton Grange favourites were observed. The arrangement of the houses with close, moisture-holding under staging, and open-work wood staging above, is of the now generally accepted plan; but where the plants have to stand on wooden staging, a rather ingenious device for preventing the plants from becoming water-logged by reason of the exit for the moisture beneath not being open is provided, the wooden staging being covered with fine ½-inch mesh galvanised wire-netting. This allows of air passing beneath the pot, and free egress for the water.

In the matter of potting material for Orchids, Mr. Stevens is of opinion that the old plan of using peat and sphagnum-moss is as good as any, and more than one house of Odontoglossums in excellent condition is so potted. As an extreme use of peat, there is a very fine example of high cultivation in a small house of Odontoglossum Pescatorei with remarkably fine bulbs, and which are potted entirely in the earthy peat generally used for Rhododendron beds. Nevertheless, Mr. Stevens gets good results with his plants potted in a mixture of peat and Oak-leaves, and for some things the Oak-leaves are used almost unmixed, and with good results, as, for example,

FIG. 105.—CHIMAPHILA MACULATA.

in the matter of a shelf full of good plants of Sophronitis grandiflora, finely grown and well-bloomed; and a lot of Miltonia vexillaria, M. × Bleuana, and others of that class, for which a large proportion of leaves is used with marked benefit.

A span-house is set apart for fine varieties of Odontoglossums for the purpose of hybridising, and a goodly number of seed-capsules are maturing. Good results have already been attained in crossing and raising Odontoglossums, some of the resultants having now nearly attained flowering size, while in various stages, chiefly in plants 2 to 4 inches in height, are some six hundred nice little plants of hybrid Odontoglossums, whose records suggest that they should turn out well. Among the crosses are O. Uro-Skinneri × O. Harryanum, O. crispum × O. Vuylstekeanum, O. crispum × O. cordatum, and others, in which the fine O. × Wilckeanum Stevensii, has been used on various species.

The seedlings are raised in several ways, and seemingly with equal facility. Some are coming up on the pots of the parent plants, others in pans of prepared peat, and a yet greater number on calico, the surface of which is rendered convex by a pad of sphagnum-moss, the whole fitting about an inch below the rim on the inside of the flower-pot. Spraying as a means of keeping them moist is frequently done, and the sprayer is much in use on all classes of Orchids.

One of the warmer houses has a select collection of showy Dendrobiums, and seedlings raised from them. Also seedling Cattleyas and Lælio-Cattleyas, and a promising cross between a fine Miltonia vexillaria and M. vexillaria Leopoldi which should produce a new form of M. × Bleuana.

The old Cattleya-house, now arranged for Odontoglossums, with the staging well up to the glass of the roof, has a good show of Odontoglossums, some fine orange-scarlet Epidendrum vitellinum, Sophronitis grandiflora, Vanda Kimballiana, and other Orchids in flower, very effectively arranged with foliage plants, the space beneath the staging also having Ferns, Begonias, &c., planted. In this house is an interesting cross between Dendrobium Kingianum and D. nobile, and other uncommon and promising things.

In the matter of continuous flowering and beauty a house of the pretty Eucharis Stevensii, raised on the place, is remarkable; and among the showiest of flowers in a pretty sheltered garden near the house, a fine display of Cineraria stellata gives brilliant effect.

The gardens and grounds are replete with interesting subjects, but at Walton Grange the Orchids take precedence.

CHIMAPHILA MACULATA.

I SEND a little sketch, natural size (fig. 105), of the delightful little sub-shrubby Pyrola from North America, Chimaphila maculata, not often seen, but a delightful plant for the bog-garden. Like most of the Ericaceous plants, it hates lime. In general appearance the plant looks like a Pyrola trying to become an Arbutus; the greyish leaves, crimson-red scapes, and drooping white flowers are very beautiful. It came to us here from Mr. T. Smith, of Newry, who has such a knack of picking up rare or uncommon things. *F. W. Burbidge, Trinity College Botanical Gardens, Pembroke Road, Dublin.*

UNITED STATES OF AMERICA.

GARDENERS' PROSPECTS.

IN your issue of October 4, I notice a letter from Alfred Harding, of Villa Nova, Pa., in which my name is mentioned. Like Mr. Harding, I have no desire whatever to enter into any controversy, but "Facts are chiels that winna ding and canna be disputed." I, therefore, beg that you will again favour me with a little space in the *Gardeners' Chronicle.*

Unfortunately, I cannot at the moment refer to Mr. Harding's original communication. I remember, however, that he said he was one of about a dozen applicants for the position he now holds. This statement of his confirms to some extent, my contention that there were, and are now, more gardeners, both managers and assistants, in the United States, than can obtain desirable situations. The number is being continually added to from Europe, because, as stated in my former letter, "Honest, capable, and ambitious gardeners and florists, have more scope offered them here, and young men of ability have more consideration shown them than they usually receive from English employers." I have not adversely criticised Mr. Harding, or his opinions. I sympathise thoroughly with him in his exuberance. I endeavoured to state facts as they appeared from a twenty years' experience, thinking perhaps they might be of more value than the opinions formed during an eight months' residence. Mr. Harding either did not understand my letter, or he purposely misconstrues my

statements. This remark refers especially to the construction he puts on the employment of Poles, Italians, &c. Mr. Harding's letter in regard to foreign or coloured help as compared with the experienced Briton, evidently means that the young British journeyman is to be satisfied, or at least make a start here, as a nursery or garden labourer, usurping, because of his greater knowledge and worth, the places now filled by the Pole, Italian, and Negro. The relative purchasing power of money in Britain as compared with the United States, is generally too well known to need any comment. I said nothing whatever in my previous letter about house-rent or cost of provisions.

To sum up the situation, we have not only a large and wealthy, but a growing country that affords, as I have already stated, much scope for the earnest, intelligent gardener, although situations are not always immediately obtained, and many able men have to work in minor places until better opportunity offers. British gardeners who come to this country and are without trade-acquaintances here, will find in most of the leading seed stores in all the larger cities, countrymen of their own, who are always glad to advise strangers, inform them as to vacancies, and do everything in their power to place worthy men in positions.

You will pardon me for again seeking to take up so much of your valuable space. I am not afraid that any of my friends will "Write me down an Ass," but I do dislike to be misquoted, and I am anxious that young gardeners who intend settling in the United States should understand the conditions as they exist, and be prepared to meet them, instead of coming with the expectation that work is always at once to be had for the asking. *Archibald Smith.*

EXOGONIUM PURGA.

The associations connected with this very beautiful climbing plant are not altogether pleasant, as may be understood when it is stated that its roots furnish the jalap of the druggists' shops. Here we have to deal with it as an ornamental plant, and as such it must take high rank. As will be seen, it is very like an Ipomœa, indeed the differences which separate the two genera are purely technical. The leaves are entire, cordate at the base, acuminate at the apex, and the large "salver-shaped" flowers are of reddish-purple and highly ornamental. Our illustration (fig. 106) was taken from a plant grown in the open by Messrs. De Graaf, of Leyden. Here it is best grown as a warm greenhouse plant, though we have seen it against a wall in the open air, and Messrs. De Graaf describe it as "simply magnificent" in such a situation. It is a native of Mexico.

Fig. 106.—EXOGONIUM PURGA: FLOWERS PURPLE.

NURSERY NOTES.

MESSRS. JAMES BACKHOUSE & SON, Ltd.: NEW BRANCH NURSERY AT COTTAL.

Although York is not a great manufacturing centre, yet, like many other cities and towns, it keeps on extending its boundaries. This is especially the case on the Holgate and Acomb side, in which direction are situate the well-known nurseries of Messrs. Backhouse & Son. I believe that in proportion to its population York increased more during the last decade than any other city or town in England. This was doubtless the main cause of Mr. Backhouse and his managers looking out for "fresh fields and pastures new." Some men now living can remember the nursery being situated beyond the city walls, on the site now covered by the old railway-station; from thence they migrated to Fishergate, now covered partly by an army office, &c., and from there to Holgate. This time the remove is much further afield, so far as the main outdoor stock is concerned, although there is as yet no diminution of the area cultivated near home. The new position is at Cottal, about ten miles out of York, on the line running from York to Harrogate. The new nursery comes up to the station, a branch line having been put in by the N.E. Railway Co.

I should say the site of the nursery is an ideal one, taking all points into consideration. The soil rests on the red sandstone formation, it slopes to the south mainly, though from its somewhat irregular shape there are parts that lie to other points of the compass, excepting northwards. There are over 70 acres in all purchased, although only about 50 acres are in nursery crops as yet. At the bottom of the slope there runs a perennial stream, on each side of which the soil is more or less of a peaty nature, to the extent of several acres. Considering that a crop of hay was cut from

this part in 1901, it was surprising to see the healthy established appearance of great quantities of young Rhododendrons, hardy Azaleas, Heaths, and other similar plants. This part of the nursery is bounded by a public road, and will, doubtless, in the time to come, be a source of much interest to thousands of visitors to this part. In the centre of the rising ground, a handsome house has been erected for Mr. Wm. Richardson, the able manager of the outside nursery department. Knowing the fame of the hardy fruit trees grown by the firm, for having plenty of roots even if the tops were not always of the largest size, I asked to see the fruit quarters first. Although the base is the red sandstone formation, the soil in this part, while of a fairly holding nature, is freely mixed with pebbly gravel. As is well known, no other soil is so productive of roots as soil of this character, and I was shown abundant proofs of this before leaving. To take Apples first, there are grand quarters of most of the leading varieties, consisting of bushes and horizontals, fan and gridiron trained, with scarcely a break in them. Many of these trees had borne a few fruits this year. I picked a very fine fruit of James Grieve, a new variety, also of Rivers' Codlin; both promise to be good and useful fruits in the North. Bismarck, too, had fruited freely for its size, although in many places it is proving a shy bearer. Mr. Richardson is very enthusiastic as to the good qualities of Ecklinville Seedling, Lane's Prince Albert, and Warner's King, as being, in the North at any rate, good market Apples. The trees are worked on the Crab and Paradise stocks.

Pears were also very fine on the Pear and on the Quince stocks; and it was curious to notice that in one part of the nursery the growth of Pears on the Quince was not so good as in another, although the stocks were of the same age and origin. In the position they did not succeed so well, the soil was very sandy.

There is a splendid lot of maiden bush and trained trees, the latter being particularly fine with from ten to twelve good growths on each, strong in growth, but ripening up well. One quarter of over 500 Denyer's Victoria Plum was particularly noticeable. The same applies to Apricots; some of the maidens were fully five feet in height, and stout and bushy withal. The Apricot does well all along the district right up to Bow Bridge, and most of the cottages have one or more Apricot trees growing on them. Peaches and Nectarines too are of great promise. I measured some of the maiden trees with myself, and they nearly topped me, and my height is over two yards!

I observed an immense breadth of Superlative Raspberry, and was told there were about 15,000 planted in the last and the previous year. Gooseberries were there in thousands, well furnished, healthy plants of all the leading varieties. Whinham's Industry seemed to be a great favourite, judging by the big breadths I saw.

Amongst evergreen trees and shrubs, Hollies and Yews seemed to be most in demand; the former are there in thousands already, both the best green and variegated-leaved species and varieties, and of all sizes, from 7 feet downwards. Holly planting was in progress at the time of my visit, quantities having been moved quite recently.

Conifers.—I noticed a grand batch of Picea Parryana glauca, about 3 ft. high; P. orientalis, P. Menziesii, Cupressus Lawsoniana var. Allumii, C. Lawsoniana, &c. I was told that, so far, all the species of Conifers planted show signs of being at home in the new land. There are thousands of young standard Limes, Sycamores, and Elms, in all the finest species and varieties, and the better species of Ash are being got ready for future removal. The same remarks apply to the finer flowering shrubs, such as Almonds, double and single-flowered scarlet Thorns, &c. Of shrubs with coloured leaves, Golden Elder and Prunus Pissardi were observed to be much deeper in tint than I had before seen them.

Hybrid Perpetual and Tea Roses, and the ordinary Teas, were noted in great quantities, and seemed quite at home, judging by their floriferousness and healthy growth, but standard Roses on the Briar, had not done so well. There are fine batches of healthy Larch, Spruce, and Scots Fir; with tens of thousands of Privet in variety. One wonders where these immense stocks of things go to every year.

On coming away from the nursery, I could not help musing on the quick movements even in natural outdoor vegetative life. Two years ago very nearly all the 50 acres of land now regularly planted with healthy young trees and shrubs, was just cleared of a crop of Wheat and other cereals. An immense sum must have been expended in well directed labour in the meantime. I learned from the manager that the whole of his workmen were ordinary farm workers from two to three years ago; he speaks very highly of their ability and conduct. At first the local farmers and others did not welcome the new competitors for labour, seeing that the price would go up a bit; this has now worn off. It is intended to break up the remaining twenty or more acres of grassland this year and next. *Yorkshire Gardener.*

CORYDALIS THALICTRIFOLIA.

FAR better than any description, and particularly to those readers of the *Gardeners' Chronicle* who have had no opportunity as yet of seeing the growing plant, is the excellent and faithful illustration of this plant in a recent issue. It is that of the snug little group at Kew, just in the mouth of the rock-garden, where it has attracted a large number of those interested in hardy plants, as much by its many beauties and merits, as for its almost perpetual flowering. Indeed, it may be said to be one of the few choice hardy plants that have gained, and merited, the high award of the "First-class Certificate." The Kew plant is only disappointing from one standpoint, but this was a sort of disillusionment rather, for it ultimately proved perfectly hardy when it was thought it had succumbed to the winter of 1901-2. But the plant has come to stay. Seeding somewhat freely, many plants have been raised at Kew, and in the herb-garden I noticed a bed or two planted with the graceful Kniphofia Nelsoni, and carpeted with Corydalis thalictrifolia. Thus, it will be seen to be a plant for the many, of elegant, graceful habit—elegant almost to frailness in the delicate slenderness of the extending petioles, over and above which the many racemes of numerous flowers are constantly appearing. Not only in the rock-garden, but in other positions this species will be found to be useful; and it will doubtless succeed on the "wall garden," seeing how well the commoner kind, C. capnoides succeeds on a wall. The almost perpetual-flowering of C. thalictrifolia will perhaps induce some cultivators to grow it for winter-flowering greenhouse plants, and even to hasten into bloom with slight artificial heat. It may be worth while to remark, that in the greenhouse the plant will be robbed of not a little of its natural grace. In a greenhouse the plant may be better seen perhaps than when forced ever so little, though even here, any material lengthening of the flower-stalks may compel the gardener to use sticks and ties, and thus spoil its appearance somewhat. *E. Jenkins, Hampton Hill.*

PLANT PORTRAITS.

DAVALLIA BULLATA.—*Revue de l'Horticulture Belge*, October.

PEACH OPOIX, *Revue Horticole*, September 1.—A late free-stone variety, which received a First-class Certificate from the National Horticultural Society of France.

TREES AND SHRUBS.

HIPPOPHAE RHAMNOIDES.

THIS is one of our native shrubs, generally found in a wild state in river-beds, or near to the sea-coast. Although generally found near the sea, and considered a seaside shrub, it will succeed equally well in our inland gardens. It is a desirable plant associated with other things, either in the shrubbery proper, or in mixed beds. In its natural state it is often only a small bush a few feet high; under good cultivation, however, it attains much larger dimensions. The leaves are of a silvery-white colour, and rather small; the flowers dicœcious; male flowers very small, in little clusters resembling catkins; females crowded, although solitary in each axil. The flowers are followed by berries, which are in autumn and winter a beautiful orange-yellow colour. It does not seem particular as to the kind of soil. I have some plants in a very clayey medium, and others in prepared soil. In both cases they do well, but in the lighter soil more suckers are produced. Propagation may be effected either by cuttings, layers, or suckers, and also by seed. Where suckers are freely produced, this is the more simple plan. A few years since I sowed a quantity of seed in the autumn, but not a plant appeared. The Hippophae being bisexual, the intending planter should remember to have a plant or two of the pollen-bearing variety planted near to the berry-bearing shrub. Although the two kinds may be sent, it is better when ordering plants to ask for them. *J.* [It would be desirable to graft shoots of the male on to the female plants. ED.]

ECONOMIC BOTANY IN MINCING LANE.

(*Concluded from p.* 290.)

BENZOIN, the third resinous product, is generally known in the trade as Gum Benzoin or Gum Benjamin, and is the produce of Styrax benzoin a small tree of the Malayan Archipelago. Two kinds are known in commerce, distinguished as Sumatran and Siam benzoin; the first is obtained from the tree just referred to, but the exact source of the Siam kind is not yet known, though there is but little doubt of its being a species of Styrax. The Sumatra quality is that mostly seen in the London market. The trees are planted for the purpose of benzoin-production in Sumatra on the edges of fields, and are of very quick growth, being raised from seed. At the age of six or seven years the trunks assume a diameter of 6 to 8 inches, and are then incised to allow the juice to exude, which it does in a thick whitish fluid, which quickly hardens on exposure to the air, when it is carefully scraped off with a knife. The average yield of a tree is about three pounds annually for the first three years, during which period the gum is of the finest quality; during the next seven or eight years the flow is somewhat less, and the produce is of a browner colour, and consequently less valuable. About twelve years of age, the trees become exhausted and are cut down, the trunks split up, and any benzoin remaining in the wood is scraped out, and being mixed with pieces of bark and other impurities, is of the lowest quality.

Sumatra benzoin is mostly of inferior quality to that from Siam; its odour is less agreeable, and weaker. It is always seen in commerce in masses comprised of numerous tears, which have become agglutinated by being packed in stout wooden boxes while the gum was still soft. Generally both sorts come in the same kind of stout cubical wooden boxes; but a good deal of the Siam kind appears in the form of large whitish tears. As seen in the chief warehouse in Crutched Friars, after a large shipment of

benzoin has arrived, the partly-opened packages present a curious appearance, and gives off a delightful fragrance—a singular contrast to the other samples often shown in the same room and at the same time, and consisting of the red bales of dragon's-blood before alluded to, and the sickly-smelling black masses of Aloes from the West Indies. When freshly opened, the benzoin is found of a creamy-yellow colour, but upon exposure to light and air it changes to a deep chocolate-brown.

Medicinally, benzoin possesses stimulant and expectorant properties, and it was at one time much used in chronic bronchitis and other lung affections. Its chief medicinal use at the present time is as an ingredient in compound tincture of benzoin, or Friars' Balsam, as a stimulant application to wounds and ulcers. Its chief use, however, is in the composition of incense for use in churches, as well as for perfumery.

Fine Sumatra benzoin has been more or less scarce for some months past, and has realised good prices, the fine gum commanding at recent sales as much as £9 to £11 per cwt. The imports from Singapore to this country show a remarkable fluctuation during the past five years; thus, in 1897, 540 piculs were received here, which had risen in 1899 to 1180 piculs, falling again in 1900 to 1116 piculs, and rising last year to 1409 piculs. The prices realised for the three resins referred to in this paper, and the quantities imported, will give a slight notion of the money value of some of our imported vegetable products of which but comparatively little is known. *John R. Jackson, Claremont, Lympstone, Devon.*

MONSONIA.

It is somewhat remarkable that in view of the lengthened period over which the South African war extended, and the extent of country traversed, together with the enormous number of Europeans engaged, attention has not been more widely drawn to the uses which the people probably make of many of the native plants, and thus their uses might have become extended by adoption into this country. In the latter part of 1900, some attention was directed to the use of Monsonia ovata, as a certain cure for dysentery, whether acute or chronic, as well as for checking discharges in typhoid fever. Its real efficacy has, however, been questioned, and it has been pointed out that the order Geraniaceæ to which it belongs does not yield a large number of active plants, but possessing chiefly those of a fragrant or aromatic character; and though some experiments have been made in this country, they have perhaps not amounted to a thorough investigation. Moreover, it is said that the true plant which is used medicinally in South Africa is not M. ovata, but another species, the name of which has not been disclosed. Be that as it may, and it is possibly a question worth further prosecution, at one of the recent drug sales in Mincing Lane, Monsonia herb (so-called) was offered for sale, three bales of which were offered at 5*s.* per lb. The drug, however, appeared to be scarcely known among the habitués of the sale rooms. *John R. Jackson.*

CROCUS SCHAROJANI.

This bright orange-yellow autumn-blooming Crocus has been flowering freely in Messrs. Van Tubergen's nursery, Haarlem, Holland. Apart from its horticultural value in being the only one of its group with bright yellow flowers, which afford just the tone wanted to light up the whites, mauves, and purples of the other autumn-blooming Crocuses, its final introduction into cultivation is certainly especially worth recording. Ruprecht, who first described this species in the *Gartenflora* (tab. 578), says that it occurs wild on Mount Oschten, which is situated in the north-west of the Caucasus; and accordingly the collector whom the Messrs. Van Tubergen have this past season employed in the Caucasus, last August went in search of this Crocus.

Fig. 107.—Crocus scharojani: flowers yellow.

The Mount Oschten, which, on account of the wild and uninhabited country is extremely difficult of access, was found to be very thickly wooded, as also all neighbouring peaks and hills, and though no effort was spared to search the country over in all directions, no trace of any Crocus could be found. Happily the Crocus Scharojani has recently also been reported from several other high mountains in the north-west of the Caucasus range proper, and it was at last found growing on mountain slopes between short, close grass, in a reddish, loamy soil, and always in open places in the full sun. The specimens from which Maw drew his description, and which are said to have come from near Trebizond, on the south side of the Black Sea, have the throats unbearded (see Maw, *The Genus Crocus*, t. 3); but in the Caucassian plants the throat is very distinctly pubescent. *John Hoog, Haarlem.*

CRAIGWEIL.

Dr. Stocker's garden is situated about 3 miles from the town of Bognor, to the westward, and close to the sea.

In the conservatory, facing the sea, and within 150 yards of high-water mark, are plants of Ruscus androgynus, 15 feet in height, growing in large tubs; a plant of Arundo Donax variegata, of fine tints, and about of the same height; a plant of Dracæna Draco, 7 feet high, and possessing a large quantity of fruit, which are now ripening; this flowered early last year, and has taken until now to mature. In the same house, and flowering well, was a large plant of the old Hedychium Gardnerianum.

On a wall outside I was surprised to see Ficus repens growing luxuriantly, having established itself, and survived several winters. Sweet Bays and Arbutus make fine growth, although exposed to the open sea. Against the wall of this ground a large plant of Diospyros kaki is growing, which the gardener told me bore fruit in most years, but that they never ripen.

A newly formed Rose-garden, with dwarf Roses planted in beds around, and climbing ones trained to loose chains radiating to a pole in the centre of the whole, forms one of the attractions of the place.

The herbaceous plants are grown in quantity, and many of the newer and somewhat rare species and varieties could be observed in great perfection. *E. Sandford.*

CHRYSANTHEMUM NOTES.

"Damping" of the Florets.—Our observations certainly indicate that "damping" is more common in most collections than usual. The evil is unlikely ever to be wholly absent from modern Chrysanthemums, it being the natural result of crowding together so many florets in one flower at the worst season of the year. Present-day Chrysanthemums are unnatural productions, inasmuch as Nature unaided would not continue to reproduce them except greatly modified, and "damping" is one of those evils that attend the high cultivation of a flower raised to an artificial degree of development.

We may remind cultivators, and especially those who are less experienced, that the best means to employ against this condition are free ventilation, a little warmth in the water-pipes, and the disuse of every kind of stimulating manure directly the florets commence to expand. The necessary root waterings should be afforded the plants in the early part of the day, and the stages and floors in the house be kept as dry as possible. Any florets that have damped should be at once removed carefully with "tweezers" that are sold for the purpose.

THE RYECROFT COLLECTION.

The collections of Chrysanthemums in and about London are now looking as well as they are likely to do during the present season. In urban districts the plants that bloom earliest usually prove most satisfactory, and this year the superiority is likely to be more marked owing to

the unfavourable, sunless weather during September and the greater part of October. In cases where early buds are "taken," the development of those buds takes place under so much better conditions than are common a week or two later, when the weather being damp, fogs and mists occur, and there is very little daylight.

Mr. H. J. Jones, of the Ryecroft Nurseries, Hither Green, Lewisham, has therefore got a large proportion of his flowers upon early buds, and the collection was nearly at its best when we visited it on the 22nd ult. Notwithstanding the adverse weather and considerable "damping," Mr. Jones' plants are the best he has had for several years, and there are first-class flowers at "Ryecroft" of almost all the novelties of the two past seasons. A feature of the collection is that the best novelties from other raisers, including Mr. Godfrey and the Australian experts, are given as much prominence and appear to be in almost as large numbers, as varieties introduced by Mr. Jones himself, so that his collection is at once a good representation of the best novelties from every source. Bessie Godfrey, a capital yellow Japanese in the way of Madame Von André, the yellow sport from Mutual Friend, is a good instance. There were fine plants of this, and it was described as one of the easiest to cultivate, every bud having developed well, and without trouble. Of varieties distributed by Mr. Jones in the spring of this year we noticed Mary Perkins (certificated last month), a very free-blooming, canary-yellow-coloured incurved Japanese, with long, somewhat narrow florets; C. Jarvis, a rosy purple-coloured Japanese, of excellent form, with drooping florets; Mrs. Richard Clayton, an immense flowered Japanese, with extremely broad florets, 1 inch or more across, colour yellow, marked with bronze and a little red, the flowers upon early buds opening with some difficulty; and Nellie Bean, an extra large flower, with long florets of an unusually pleasing shade of blush-pink. The outer row of florets are fluted, and have spoon-like tips. This is a variety that appeared to be very commendable. Also George Lawrence is an excellent variety, with twisted and drooping florets, colour bronze or nearly red, with buff reverse; Mrs. Griffin, an extra large yellow flower with long, drooping, flowers incurved at the tips; and J. C. Hill, a reflexed Japanese of intense crimson colour. Other good varieties included Guy Hamilton (Pockett), an excellent Japanese, with long, drooping florets, which, though opening green, become pure white; Madame Paolo Radelli (Calvat), an incurved Japanese, of pale rose colour, recently certificated; Mrs. Harry Emmerton, a large, yellow Japanese, with smooth florets of similar type to G. J. Warren; Queen Alexandra, Mr. Godfrey's distinct novelty of last season, colour buff and pink; Mrs. Greenfield, introduced by Mr. Jones in 1901, a smooth Japanese, colour rich yellow, of the type of Phœbus, a very free-blooming variety; Walter Abbott, a true Japanese, of drooping, twisting florets, colour reddish-bronze on a dull yellow ground; and Ryecroft Beauty, a decorative Japanese, distinct, of a pleasing shade of pink colour. On the date mentioned above this variety was blooming freely in the ground out-of-doors.

It is obvious that the conditions under which the Ryecroft collection is grown at Lewisham, offer very great difficulties to the cultivator; and it is not surprising that Mr. Jones has found it necessary to obtain land for the purpose further from town. The half-dozen acres of land which he has secured at Hayes will give him a much better chance next season.

AT WOODHATCH, REIGATE.

The late Mr. T. B. Haywood, of Woodhatch Lodge, Reigate, was a well-known admirer of the Chrysanthemum, and in his excellent garden, in which he took so deep an interest, a good collection was cultivated each year. Personal friends were invited to visit the collection on a certain day, and to meet each other at what was known at Woodhatch as "the Chrysanthemum lunch." Mrs. Haywood and her son still maintain the garden as it was formerly, and it is just as full of valuable and well-cultivated plants as ever. The company of gentlemen who will be Mrs. Haywood's guests next week should find a good show of Chrysanthemum blooms. On the 28th ult., whilst a considerable proportion of the flowers were approaching full development, many others, especially incurved varieties, were only commencing to expand their florets. The collection is always an interesting one, because it contains greater variety than most others. The Japanese section admittedly predominates, but they do not constitute the whole collection, and there are varieties of almost all the other types mixed with them. Even the pure reflexed flowers, that have been almost banished from cultivation because they do not possess large size, but refinement only, are to be seen at Woodhatch, and of these we saw some capital specimens of the richly coloured King of Crimsons, and of the Christine family. It is so with the Pompons, the Anemone flowered type (of which Descartes is so fine a representative), and the singles. Mrs. Haywood cultivates them all, each type being represented by a few select varieties. Most of these are pretty well known and need no description. Amongst the Japanese were Le Grand Dragon, W. R. Church, Mrs. White Popham, Charles Davis, Lily Mountford, Mrs. T. W. Pockett, Mrs. Barkley, Ed. Molyneux, Nellie Pockett, Mme. Philippe Rivoire, Mrs. Greenfield, a new yellow Japenese, Ernest Bettisworth, crimson shaded with violet, Lionel Humphreys, Phœbus, &c. The show is made in two lean-to Peach-houses, but there are numerous plants developing their flower-buds in the other glasshouses. Mrs. Haywood's gardener, Mr. C. J. Salter, makes a feature of cultivating a few varieties in 6-inch pots, and they succeed admirably, each producing a single bloom of nearly equal merit to those upon larger plants. The varieties Lord Ludlow, M. Chenon de Leché, Mrs. Coombes, and Charles Davis, were thus treated.

In the other plant houses, the collection of Orchids is in first-rate condition, though there are but few species now in bloom. Among these were Cattleya labiata, C. Bowringiana, Dendrobium Phalænopsis, exhibiting very great differences in degree of colour; Vanda Sanderiana in a basket, with an excellent spike of attractive flowers; Oncidium cheirophorum, and Masdevallia Chimæra. The stove contains a well cultivated collection of choice Cordylines, Codiæums, Palms, Nepenthes, &c.; and in another house Lapagerias were flowering very freely, and there was a group of plants of Salvia splendens grandiflora. Begonia Gloire de Lorraine in baskets and pots was splendid, and Messrs. Veitch's new hybrid winter-flowering Begonias were represented by Winter Cheer, Ensign, and Ideala.

The house containing the zonal Pelargoniums was gay as ever. *P.*

The Week's Work.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

The Mushroom-house.—If it has been necessary to apply artificial heat in order to maintain a warmth of 55°, a thick covering of soft hay, from which the grass-seeds and short stuff have been shaken out, should be placed on the Mushroom-bed. Damp the floor, especially near the hot-water pipes, twice a day; and if the beds require water, afford it after a general clearance of the useable Mushrooms, but avoid applying water when clusters of buttons are pushing through the soil, or many of them will be destroyed. An ideal Mushroom-house is one in which the temperature is not much affected by the weather, and where the necessary degree of warmth can be maintained without the use of much fire-heat. The Mushroom-house in these gardens is under ground, and is arched over, and an open lean-to shed facing the north, built over it, in which the materials are prepared for the beds. The heat from these augmented in very severe weather with some short litter, is found sufficient to prevent the temperature falling below 55°. The stable dung when in the wheelbarrows should be protected in some manner from rain or snow.

Manure Heap.—If this has been turned, and the drainings from hot beds poured over it, as well as manure-water, advised in a former calendar, a heap of valuable manure should be in the right condition for wheeling on to the quarters to be cropped with early Peas, early Potatos, Onions, &c. Continue to prepare materials for digging-in during winter and spring.

Trenching.—Land to be cropped with Peas should be liberally dressed with dung placed at the bottoms of the trenches, and trenched as soon as possible, so as to get consolidated before sowing time, that is, early in January. If the ground has not been trenched previously, the crude subsoil must not be brought to the surface, but be broken up with a digging-fork 9 inches deep, the dung being placed on the top of this. Subsoil treated in this manner may be safely brought to the surface in small quantities in future years. Early Potatos pay for a thorough preparation of the soil, so that whatever the crop which follows the Potatos, the ground cannot very well be over enriched. In trenching land for these, place a light dressing only of the longer portion of the dung, with anything in the shape of weeds or refuse from the crop just cleared off at the bottoms of the trenches, and a heavy dressing under the top spit. The ground intended for the Onion crop should be trenched in a similar manner, in each case leaving the surface as rough as possible.

General Work.—The mild weather of the past two or three weeks has too much encouraged the growth of the late sowings of Lettuce, and the forwarder plants should be planted forthwith in a dry position, as in the event of a severe winter succeeding, or even a sudden change to sharp frost, the plants would be much injured. Stir the soil in plantations of late Savoys, Kales, autumn-planted Cabbage, gathering up large weeds by hand.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, East Budleigh, Devonshire.

Red and White Currants.—These being among the first to shed their leaves, planting may now be begun and carried on during the next six weeks, especially on light soils; and providing the weather is mild, the bushes will get somewhat established before the spring, in which event the bushes may carry a crop of fruit next year, whereas, if planting be deferred till January the bushes will make but little progress the first year after planting. On strong retentive soils it may be prudent this year to defer planting until February, when, if the weather be favourable, growth will advance without a check. Red and White Currants being extremely hardy may be planted when this is necessary in exposed quarters, although shelter is not to be despised. The bushes are often planted round the vegetable quarters, and near the garden paths, though I prefer to plant them in quarters by themselves in rows at 5 to 6 feet apart, quincunx fashion. In such quarters the bushes are readily protected by fish-netting, or more permanent material, from the birds. No planting should be done whilst the ground is very wet, as the work cannot then be carried out in a proper manner. If Currant bushes have to be planted on land which has been recently cleared of old bushes, or gaps are to be filled up in the rows, collect every bit of root, and apply a bushel of good loam, together with a small portion of decayed stable-dung, to the staple wherever a fresh bush is planted.

Varieties.—Fine in size of bunch and berry are the following—Red: Cherry Red, Comet, Raby Castle, and Jay's Prolific; Comet and Raby Castle being capital Currants for covering a wall. Half a dozen bushes of the White are enough for most families. Versaillaise, White Grape, and Gloire de Sablons are the cream of the varieties, but the old White Dutch is the sweetest. Currants should be grown as standards, with stems 9 inches high, and no suckers from the lower part of the stem should be allowed to exist.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith, Scotland.

Cucumbers.—Young vigorous plants, raised at frequent intervals from seed, maintain the best successions. The cultivation of the Cucumber in the winter should not be attempted excepting in a properly constructed house so situated as to get the maximum amount of sunshine during the short days. It should be well heated, yet strong fire heat is injurious, and a covering of frigi-domo fixed on a roller, should be let down over the roof at night, in order to prevent loss of heat. A mean temperature of 60° to 65° at night, according to the weather, should be maintained, and the bottom heat should range from 75° to 80°. Abundant drainage should be provided immediately under a thin bed of soil, made up of rough turfy loam, &c. Cucumber plants raised in July, and whose fruiting season is about ended, should be cleared out. The plants raised in August may be allowed to carry comparatively light crops. Encourage growth by frequent light sprinklings of manure containing phosphoric acid. Fumigate the plants occasionally; damp the paths by day more or less heavily, according as the house is naturally arid, or the reverse, and apply water with care, affording neither too much nor too little.

Strawberry Plants for Forcing.—Remove the plants to an orchard-house, late Peach-house, or any other glasshouse from which frost is excluded, and apply water to the plants before the soil gets very dry. Where glass protection is not possible, plunge the pots in fine coal-ashes, or build them up in stacks with coal-ashes or leaf-mould, of a width of 3 feet at the base, tapering to 2 feet at the top; and during hard frost cover with dry litter. A hot-water pit should soon be got in readiness for the earliest batch of plants, putting into it fresh tree-leaves to a depth of 3 feet, and bringing the bed up to within 1 foot of the lights. The earliest-forced Strawberries, which should have been potted in 48's, may be afforded a small quantity of Veltha, and be plunged in the leaf-bed when the warmth has reached 70°. Unless the soil is dry at the time they are plunged, water should not be afforded before the bloom-trusses appear, the moisture derived from the leaf-bed sufficing for their needs. A top-heat of 50° until the flower-spikes are thrown up will suffice. Air should be afforded so as to let the moisture arising from the bed to escape. When the plants are coming into flower, remove them to a more airy place, such as a shelf near the glass in a vinery or other house where a temperature of 55° by day is maintained, and 10° higher with sunshine. Strong, healthy plants only will succeed at so early a date. No syringing of the plants must be carried on till the fruit forms, at which stage the night temperature may be raised to 60°, and that of the day to 70°.

Tomatos.—The plants raised in early summer will afford fruits till January, being grown in a pit or house having a mean temperature of 55° to 60°, with as much sunlight as possible, and air admitted in mild weather in quantity according to weather conditions. Tomato plants do not succeed in close stagnant air. If a little Veltha be sprinkled on the surface of the soil, and the foliage is sprayed with Veltha emulsion, it will tend to keep the plants in health at this season. In affording water, err rather on the dry side. Seed may soon be sown for succession, the plants being kept close to the glass in the early stage.

THE FLOWER GARDEN.

By R. Davidson, Gardener to Earl Cadogan, Culford Hall, Bury St. Edmunds.

Flowering shrubs. — The selection of choice flowering shrubs that are available for forcing throughout the winter and spring months will at the present time be engaging the attention of the gardener; and as soon as the leaves have dropped off the deciduous species, they may be lifted from the open ground, choosing only those that have well ripened wood and plenty of flower-buds. Place them in pots that will just accommodate the roots and a small quantity of soil. The compost employed for potting will naturally vary, but each should have that which is best suited to its requirements; but little drainage material is required beyond a few crocks or oyster-shells. The soil should be made firm with a rammer, and the pots stood on coal-ashes in a sunny spot for some considerable time, in order that the plants may become established before they are taken indoors. It may not be out of place to mention a few of the species found most useful for forcing, viz., the Mollis and the Ghent Azaleas; Deutzia gracilis, one of the easiest of shrubs to force into bloom; and D. Lemoinei hybrid, is one of the best, although as an outdoor shrub in this country they have not given great satisfaction; double-flowered Peaches and Almonds are very desirable for early bloom, and needing only very gentle forcing; and of Prunus triloba, the semi-double forms, and P. sinensis alba and rosea plena are charming subjects. Double-flowered varieties of Cerasus are very attractive plants, also Syringa Marie Legraye, S. Charles X., and S. persica. Magnolia conspicua and M. Soulangeana, with striking massive flowers; and M. stellata, which has white blossoms, are all attractive plants. Magnolias should be taken up with very great care, and with as much soil as possible attached to the roots. Spiræas, Viburnums, Staphylia colchica, Cydonia, Forsythias, Laburnum and Wistaria, are plants that readily admit of forcing; and as the soil has become nicely moistened by the recent rains, they may all be lifted immediately, affording each a suitable soil and careful treatment. The Tree Pæonies are shrubs that should not be overlooked, and selections from the home stock of plants may be lifted and potted.

THE ORCHID HOUSES.

By W. P. Bound, Gardener to J. Colman, Esq., Gatton Park, Reigate.

Lælia grandiflora (syn. L. majalis).—For the next four months this species will require no moisture, and it may be afforded a place in the cool intermediate house, where full sunshine may reach it.

L. autumnalis, L. Gouldiana, and L. albida.—The flower-spikes on these plants are in various stages of development, and they should be so placed that full sunlight may reach them in the same house with the foregoing, admitting air freely, and affording water in moderation till the new pseudo-bulbs are quite developed, when the quantity must be considerably reduced.

L. glauca.—In order that the new growths may flower in the spring months, the plant should be placed in full sunshine in the intermediate-house at about 18 inches from the glass, and water applied when the compost is dry. Potting or surfacing may be carried out soon after the plant has flowered.

Cleansing the Glasshouses and Plants.—The whole of the houses in which Orchids are grown should be cleansed inside and out at this season, including also the plants. As a commencement, remove some of the plants to other houses, so as to afford space for the workmen, and avert injury to the plants while the work is being carried out. The woodwork should be scrubbed with warm water, in which soft-soap at the rate of 4 oz. to the gallon is melted. After the woodwork, have the walls and glass cleansed; let the plants be sponged, freed from dust, scale insects, &c., and the pots washed. Badly-infested plants should be set aside for cleansing after the houses are finished and the glass made bright, otherwise the last house to be done would have to wait a longer time than would be good for the inmates.

Staging.—This should consist of an upper and a lower stage, the latter being covered with some small coal with the dust taken from it, or finely-broken coke that will pass through a $\frac{3}{4}$-inch meshed sieve or shingle, which is that which I prefer. The staging in use here on which the plants are stood is made of $1\frac{1}{4}$-inch square pitch Pine bars, and is laid on bricks, making it possible to raise or lower the staging without going to much trouble. A staging of this description is preferable and safer than to stand each plant on an inverted flower-pot. Let those plants that require the strongest light be put in the most suitable places. I find it best to arrange the plants in straight lines as far as may be done, as damping between the pots is then more readily performed; and when the compost contains leaf-mould, or Fern rhizomes are used in the drainage, it is necessary to so arrange them as to allow of the frequent necessary damping down.

PLANTS UNDER GLASS.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Forcing Plants. — These plants in numerous gardens will now be arriving from the nurserymen, and as many of them are of continental growth, some long time has elapsed before the plants come into the hands of the gardener. Usually care is taken to afford the balls of roots and soil sufficient water to enable them to arrive here in a moist condition, but there are exceptions. When it is observed that Azaleas are in a dry condition, the balls should be steeped for a short time in water, but this does not save their buds from dropping just as they are opening, and blame for this is frequently cast upon the wrong shoulders. Should there be the least suspicion of dryness of the balls, they should be steeped for not less than an hour in water before potting them, after which they should be plunged to the rims in ashes in cold frames. Spiræas (Hoteias), too, are moisture-loving subjects, and should never be allowed to become dry, and though perhaps such plants as Staphyleas, Deutzias, Cerasus, Lilacs, and the many other shrubby subjects that are commonly forced will bear a little more drying than those mentioned, the less drought to which their roots are subjected the better. The crowns of Dielytra spectabilis are easily bruised or injured; and they need careful handling when being potted, and, unless the crowns can be buried under the surface-soil, they should be covered with damp moss, which should be allowed to remain on until growth has begun. The crowns of Solomon's Seal become hardened by exposure to the air, and in this condition they refuse to break freely when put into heat. The pots for these two plants should be deep enough to allow the soil to come right over the crowns, and if then a little moss be laid on the soil, they respond quickly to forcing. Where the home-grown stock is abundant, it is advisable to pot or place in boxes a large quantity of Solomon's Seal, for besides being a good flowering plant, it is most useful for providing tall foliage to mix with cut flowers in the early spring months.

Freesias.—Cold frames will no longer be suitable quarters for Freesias, these plants requiring as much light as possible, in order to keep the growth sturdy; and it is therefore better practice to place them in a glasshouse near the roof, and allow them to grow without forcing.

Bouvardias.—The earliest plants being just on the point of coming into flower, may be afforded manure-water or a light sprinkling of artificial manure if root-action is vigorous. Let a temperature of 55° to 60° be applied, and afford them plenty of light and a fair amount of ventilation.

Rhododendrons.—The hybrid Javanese Rhododendrons are useful plants which the gardener may have in flower at almost any season, but those which flower in the winter are perhaps the more acceptable. To cause the flower-trusses to open freely, a temperature ranging from 55 to 65° should be afforded, and full sunlight at this season; and under these conditions every new shoot will set flower-buds, and a long succession of flowers be kept up.

THE APIARY.

By Expert.

Driven Bees.—In cases where these have not quite stored enough honey, feeding should be pushed on as rapidly as possible, but where the bees are doing badly, unite two stocks, selecting the strongest to stand. Flour both lots well before uniting, and do the work in the evening; the united strength should then be eight frames well filled.

Skeps for wintering.—These should be raised a little higher from the ground than is oftentimes the case; and where mice are troublesome, place a little queen-excluder over the front, and examine the top often to see that no mice are working under the sacks or pans, as generally used. Have all long grass cut down around the hives.

APPOINTMENTS FOR NOVEMBER.

SUNDAY,	Nov. 2	Chamb. Synd. des Hort. Belges Meet. at Ghent.
TUESDAY,	Nov. 4	Royal Hort. Soc. Comms. meet; Nat. Chrys. Soc. Exhibition in Royal Aquarium (3 days); Scottish Hort. Assoc. meet; Chrysanthemum Shows at Plymouth (2 days), Southampton (2 days), and Witney.
WEDNESDAY,	Nov. 5	Chrysanthemum Shows at Cardiff (2 days), Torquay, Margate (2 days), Hanley (2 days), Ascot (2 days), and North Peckham, London (4 days).
THURSDAY,	Nov. 6	Chrysanthemum Show at Newport (Mon.).
FRIDAY,	Nov. 7	Chrysanthemum Shows at Leicester (2 days), Macclesfield (2 days), and Bolton (2 days).
MONDAY,	Nov. 10	Nat. Chrys. Soc. Floral Com. meet.
TUESDAY,	Nov. 11	Chrysanthemum Exhibitions at Birmingham (3 days), Brighton (2 days), Oxford, Belfast (2 days), Ipswich (2 days), Devizes.
WEDNESDAY,	Nov. 12	Chrysanthemum Exhibitions at York (3 days), Hull (2 days), Liverpool (2 days), Winchester, Banbury, Wandsworth (2 days), Buxton.
THURSDAY,	Nov. 13	Scottish Hort. Soc. Chrys. and Fruit Show at Edinburgh (3 days), Chrys. Exh. at Colchester and Maidenhead (2 days).
FRIDAY,	Nov. 14	Chrysanthemum Exhibitions at Bradford (2 days), Stockport (2 days), Sheffield (2 days), Eccles, North Lonsdale.
MONDAY,	Nov. 17	Nat. Chrys. Soc. Floral Com. meet.
TUESDAY,	Nov. 18	Roy. Hort. Soc. Coms. meet; Leeds Paxton Soc. Chrys. Show (2 days).
WEDNESDAY,	Nov. 19	Chrysanthemum Show at South Shields (2 days).
THURSDAY,	Nov. 20	Leamington, Warwick, and Dist. Chrys. Soc. Show (3 days), Bristol Chrys. Soc. Show (2 days).
FRIDAY,	Nov. 21	Aberdeen Chrys. Show (2 days).

SALES FOR THE WEEK.

MONDAY to FRIDAY, NOVEMBER 3 to 7—
Dutch Bulbs, by Protheroe & Morris, at 67 & 68, Cheapside, E.C., at 11 o'clock.

MONDAY, NOVEMBER 3—
Roses, Shrubs, and Bulbs, at Stevens' Rooms.—Sale of Nursery Stock at Cooksbridge Nursery, Cooksbridge, near Lewes, by order of Mr. W. J. Woollard, by Protheroe & Morris, at 12.

TUESDAY, NOVEMBER 4—
Annual Sale of Nursery Stock at Hale Farm Nurseries, Feltham, Middlesex, by order of Messrs. T. S. Ware, Ltd., by Protheroe & Morris, at 11.—Annual Sale of First-class Nursery Stock at Milford Nurseries, Milford, near Godalming, Surrey, by Messrs. Mellersh, at 12.

WEDNESDAY, NOVEMBER 5—
Roses, Azaleas, Daffodils, &c., at Stevens' Rooms.—Orchids, at Glasgow, by Mr. John Cowan, at 12.30.—Sale of Nursery Stock at Shortlands Nursery, Shortlands, Kent, by order of Mr. J. B. Bryant, by Protheroe & Morris, at 12.—Sale of Freehold Properties, Dwelling House, and other Building and Nursery Stock, at the Crescent Hotel, Ilkley, Yorks, by Protheroe & Morris, at 5.—Azaleas, Palms, Rhododendrons, &c., at 67 & 68, Cheapside, by Protheroe & Morris, at 12.30.—Annual Sale of well-grown Nursery Stock at Camden Nurseries, Cranbrook, Kent, by Messrs. Winch & Son, at 11.—Annual Sale of First-class Nursery Stock at Milford Nurseries, Milford, near Godalming, Surrey, by Messrs. Mellersh, at 12.

THURSDAY, NOVEMBER 6.—
Freehold Land, known as Airedale Nurseries, Trizinghall, Bradford, at the Empress Hotel, Tyrrel Street, Bradford, by Protheroe & Morris, at 5.—Sale of Nursery Stock at the Putney Nurseries, Clarenden Road, Putney, by order of Messrs. Mahood & Son, by Protheroe & Morris, at 12.

FRIDAY, NOVEMBER 7—
Orchids in large variety, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick—41.8°.

ACTUAL TEMPERATURES:—

LONDON.—*October* 29 (6 P.M.): Max. 58°; Min. 45°.
October 30.—Dull, foggy, fine rain; temperature 55°, noon.

PROVINCES.—*October* 29 (6 P.M.): Max. 54°, S.W. Ireland; Min. 47°, Eastern Counties.

Rural Education.

WRITERS in agricultural and horticultural papers have of late years railed considerably at what they consider to be the very unsuitable scheme of education in vogue in rural schools, so that an account, furnished us by a Correspondent, of an attempt to bring the instruction in such a school into line with modern ideas may not be out of place.

Of course, it is assumed that such writers have at heart the benefit of the children and of the community at large, and that they are not simply smarting under the provocation of not being allowed by the attendance authorities to employ child labour for their own benefit at the expense of the child's future well-being.

First, then, it is the belief of the managers of the school in question that that education is best which will enable the child, so far as circumstances will allow, to cope intelligently with the work and difficulties he is likely to meet with in after life. They believe that it is better to train the mind to exercise its functions than to cram it with information; to observe facts and understand their bearings on each other, and on itself, than simply to accumulate facts which, allowed to remain undigested, serve only to clog the mental system. And since the phenomena and facts found in Nature are not only a source of pleasure to the mind, but also provide it with material on which to exercise its highest powers of induction and deduction, twelve years ago it was decided that Nature-study should be introduced into the school.

Instead of meeting with encouragement, at that time teachers were labouring under a cast-iron code, and the new study could be introduced only by dropping some other subject. Grammar—that bugbear to the ordinary schoolboy who, in the country, rarely stays at school long enough to get over the mere drudgery—was therefore taken from the school course, it being believed that enough of the grammar of the English tongue could, for all practical purposes, be taught incidentally, without the everlasting bore of parsing and analysis. Not that these subjects are by any means to be slighted, but that it was felt that a better mental exercise—for which these subjects are most valuable—could be provided from the observation of plant and animal life, if the observations were scientifically dealt with.

Then was discovered the most woful ignorance on the part of the country child of the life-history and names of all but the commonest, and indeed often of the very commonest, plants and animals. At the same time were demonstrated the keen powers of observation of the young rustic when directed to objects in which he was interested.

After giving a few lessons in elementary botany, the boys were soon able to dissect a flower intelligently, to point out the various parts and explain their functions, and in a short time they could deal intelligently with any of the puzzling forms of inflorescence or foliage. Now they are not to be deceived by even the single Dahlia, which tries so very hard to look like a simple flower; or by the stately Iris with its pistil calculated to deceive the very elect. But, of course, the ability to name parts of a plant and to indicate their functions, valuable as they may be as exercises in observation, affords little mental training. But when one part of a plant is compared with a homologous part of another, the difference of form noted, and an attempt made to account for the difference, a mental exercise is provided superior to any ever dreamt of by LINDLEY MURRAY or his successors.

The majority of the scholars can now name any plant of the neighbourhood, tell where it is to be found, say why this is provided with prickles, that with hairs, or others with tap-roots, erect or prostrate stems, tendrils, and so forth. Given an armful of herbage from the hedge-bottom or meadow, most of the boys will refer each plant to its species, and even name most of the grasses, besides being able to tell those economically beneficial or injurious, and why they are so.

Every morning the boys bring to school any plant they may have met with which is unknown, or if known, abnormal in character. The master points out, or rather gets the children to point out, the salient features, and to account for them. Great is the pride of the boy who can add a new species to the school record of the neighbourhood. After the plants have been duly observed, they are placed in bottles and labelled; and a dried collection of the plants of the district is also formed.

The study of Nature, however, is not confined to plants, but insects also come in for a share of consideration, special attention being paid to those of an injurious character. Lessons are given on the life-history and structure of typical insects, and all specimens captured by the boys are named as far as possible. Methods of combating insect pests are studied, and to this end the valuable leaflets issued gratis and post-free by the Board of Agriculture are used as reading lessons. A few days ago it was discovered that a youngster more precocious than the rest, had responded to the invitation printed on each leaflet, and written for a set to present to his father—a worthy farmer of the district, which if not actually teaching a grandmother to suck eggs, was an attempt towards training a parent to crush click-beetles.

No manifestation of insect attack is now likely to go unobserved, and often the veriest dullard in the school is the most brilliant in the field. As a case in point, the most hopeless dunce of the class is our great authority on the aculeate Hymenoptera, and has several colonies of wasps and bumble-bees working in his garden under observation, in boxes with glass lids—a scheme absolutely of his own invention.

Several boys have formed collections of plants and insects on their own initiative, though they are not greatly encouraged to do so, lest they should become mere collectors rather than investigators. More importance is attached to observing, recording observations, and deducing laws than to the formation of collections.

To encourage constant habits of observation, a Natural History Conversation Class is held every week, when the boys bring forward and discuss any natural history incident they may have noted. A written report of the class is afterwards placed in a book by each boy. The upper boys are taught to find the area of a field after measurement with a chain, and arithmetic is taught with special reference to rural life.

Sequoia gigantea (Wellingtonia) struck by Lightning at Mr. E. Hollamby's Nursery, Groombridge, Tunbridge Wells.

In spite, however, of the attempt to interest the boys in country life, and so to obviate its reputed dulness, many of them will drift to the towns; but even in their cases, the training in scientific methods will by no means have been thrown away, while those who imbibe a real love for Nature, whether their circumstances call them to town or country, will feel more and more with WORDSWORTH, that—

" . . . . Nature never did betray
The heart that loved her; 'tis her privilege
Through all the years of this our life, to lead
From joy to joy."

Old readers of the *Gardeners' Chronicle* will remember the efforts which were made by the late Professor HENSLOW to interest and instruct the children in his village-school, and also his older parishioners. It is to be feared that the example set by the Cambridge Professor was not very widely followed at the time, though they attracted the attention of that very clear-sighted person, the late PRINCE CONSORT. Now, we may hope the public is better prepared to appreciate the intrinsic worth of natural knowledge, and its applicability to the business of life. A reference to our back volumes will show how excellent was the method pursued by Mr. HENSLOW.

THE EFFECT OF LIGHTNING ON TREES — The Supplementary Illustration we give in our present issue shows the prodigious disruptive force exercised by the passage of the electric fluid through the trunk of a Wellingtonia in Messrs. HOLLAMBY'S nurseries, at Groombridge. The tree was struck during a thunderstorm of exceptional severity on June 30. It was one of about fifty specimens forming an avenue in the nursery, and was about 60 feet high. The tree was situated about half-way down the avenue. We are still in ignorance why one particular tree is picked out among others close by, and why one particular sort of tree is injured more frequently than others which seem to be more or less exempt. The Beech is rarely struck, the Oak often. LOUDON in the *Arboretum*, vol. iii., p. 1810, gives some interesting details concerning the effect of lightning on Oaks; and the English edition of HARTIG'S *Text-Book on the Diseases of Trees*, p. 302, has a short section on the subject, but one that conveys but little information on the how and why the destruction is brought about. In some trees the injury is slight, affecting the bark to a moderate depth only; in others, as in the case before us, the destruction is too complete for healing over to be possible. In some cases the full amount of the injury is not visible at once, but the tree gradually dies, when the cause of the mischief is well-nigh forgotten.

LINNEAN SOCIETY. — Mr. H. J. ELWES, F.R.S., F.L.S., will read his paper entitled "Notes on a Natural History Journey to Chile," on Thursday, November 6, at 8 P.M.

ROYAL HORTICULTURAL SOCIETY.—The next meetings of the Floral, Fruit, and Vegetable Committees of the Royal Horticultural Society will take place on Tuesday, November 4, in the Drill Hall, Buckingham Gate, Westminster, from 1 to 4 P.M. A lecture on "The Dietetic Values of our Common Vegetables" will be given at 3 o'clock, by the Rev. Prof. G. HENSLOW, M.A., V.M.H. The Scientific Committee will meet at 4 P.M. in the Library.

—— At a general meeting of the Royal Horticultural Society held on Tuesday, October 21, thirty new Fellows were elected, amongst them being Lady OWEN ROBERTS, the Hon. Mrs. WOOD, Col. HENRY MOORE, and Col. F. B. P. WHITE, making a total of 1,005 elected since the beginning of the present year.

THE JOURNAL OF THE ROYAL HORTICULTURAL SOCIETY. — Another part, dated September, is now before us. It is so full of detail that it would take up more space than we can afford to analyse its contents. Suffice it to say, it is excellent. The guinea Fellows get much more than a guinea's worth. It contains reports of the papers read before the Society, and even before the Horticultural Club. Of great value also are the notes on recent research, and the abstracts from the various periodicals, foreign as well as British. As experience is gained, this department will be improved in the sense of proportion, and in the separation of what is really novel from what is already well known.

KEW.—Go where he may, there is always much to interest the visitor. The show-house No. 4, is beginning to be gay with Chrysanthemums; but of less banal character are the Cannas and the beautiful climbing Dahlia, Hidalgoa Wercklei, with its beautifully cut foliage and large, orange-red, star-like flower-heads. Pleroma macranthum flowers for many months in the year, its large, blue-violet flowers being always attractive. Salvias make a great show, not only the scarlet S. splendens, but the blue S. cœrulea; Lilium sulphureum is also very attractive. Peristrophe speciosa and Jacobinia magnifica are two showy Acanthads. Then there are batches of Primula obconica, Celosias, Lantanas, Funckia lancifolia, and a host of other showy plants. In the Orchid-house Vanda Kimballiana is in full flower.

ROYAL APPOINTMENT. — Messrs. WILLIAM BULL & SONS, New Plant, Seed, and Bulb Merchants, of 536, King's Road, Chelsea, London, S.W., have been honoured with the appointment of florists to His Majesty the KING.

NERINE FLEXUOSA ALBA. — We are desired by Messrs. BARR & SONS, King Street, Covent Garden, to inform our readers that Nerine flexuosa alba, shown by them at the last meeting of the Royal Horticultural Society, received a Botanical Certificate, record of which was omitted in our report. The species is new, and is likely to prove a valuable addition to garden plants, the flowers being pure white, large, and crinkled.

BARON SAINT PAUL ILLAIRE.—We greatly regret to have to announce the death of this gentleman at Fischbach, in the Riesengebirge, on the 21st ult., in the seventieth year of his age. Baron ST. PAUL was a distinguished arboriculturist and President of the German Dendrological Society, in which capacities he was met with at the Ghent Quinquennial Exhibitions. To horticulturists his name will be commemorated by the pretty Saint-Paulia ionantha, first exhibited at one of the Ghent Quinquennials, and now a popular stove-plant.

POULTRY.—Mr. HARRISON WEIR'S great work, *Our Poultry*, the first fortnightly part of which is now issued by Messrs. HUTCHINSON & Co., has been in preparation over ten years. The illustrations, which have been specially and exclusively executed for the work, comprise over 200 black-and-white drawings by the author, besides 36 coloured plates reproduced from Mr. WEIR'S original paintings. There are also a number of photographs specially selected by the author.

WOBURN EXPERIMENTAL FRUIT FARM.—At the Woburn Experimental Fruit Farm, the annual display of hardy fruits provided for the tenants and residents in the district has just been completed in the pavilion in the centre of the Farm. About 100 varieties of Apples, Pears, nuts, &c., are represented, eight long tables being filled, and effectively arranged. In addition to the samples of the varieties that succeed best in the locality, which occupy the centre of the building, side tables are devoted to illustrating the method of grading adopted, with examples of packing in small and large quantities, with the boxes made on the premises by the workmen under the direction of the manager. A series of specimens of Apples from the Millbrook plantation is also shown, and the fruits are interesting as the produce of trees grown on exceptionally light poor soil, the extreme contrast to that at Ridgmont. The exhibition is open every week day.

HORTICULTURAL COLLEGE, SWANLEY.—The report of the College shows that a good, all-round training in the principles and practice of horticulture is provided, and that the course of instruction is likely to be useful, not only to gardeners and fruit growers, but also to stewards and to those who are destined to become landed proprietors or estate managers. A colonial branch has been added, in which the requirements of intending colonists, especially women, are specially attended to.

FLOWERS IN SEASON.—We have received from Messrs. LADHAMS, Ltd., Shirley, Southampton, some pretty blooms of Mrs. Mouland and Marion, perpetual-flowering Pinks, that have been in bloom the whole season. Flowering so late shows the value of this new race. The beds in the open air of either variety are masses of flower-buds and flowers.

STRAITS SETTLEMENTS. — The September number of the *Agricultural Bulletin* contains the continuation of Mr. RIDLEY'S enumeration of the fruits of the Malay Peninsula, and numerous papers on the cultivation of the various trees producing rubber. The Mango is very commonly cultivated, but for a variety of reasons the fruit when produced is almost uneatable. An article on Para rubber (Hevea) illustrates once more the good work done by Kew, and by the Indian Government.

LONDON DAHLIA UNION.—We are requested to draw the attention of our readers to the following intimation:—"We have the pleasure to invite your attendance at a meeting of supporters of the above Society, to take place at the Royal Aquarium, Westminster, on Tuesday, Nov. 4 (the first day of the great exhibition of the National Chrysanthemum Society), at 4 o'clock P.M., in the Gallery Dining Room. A statement of receipts and expenditure, duly audited, will be submitted, and a report from the chairman and secretary to the effect that they have arranged with the Directors of the London Exhibitions, Ltd., Earl's Court, West Kensington, for the exhibition of the London Dahlia Union to be held in the Prince's Hall of the Exhibition on Wednesday and Thursday of the third week in September. The Directors of the Earl's Court Exhibition have met the suggestions of your chairman and secretary in the most liberal manner, and it is certain that a very fine exhibition may be anticipated. The London Dahlia Union has done much to popularise the Dahlia among all classes by holding exhibitions of a high character in a place of popular entertainment, and thus has been the means of interesting thousands in the Dahlia, and inducing many to cultivate and exhibit it. Requesting the favour of your presence and also your support of the Union in maintaining its most successful career, we are, yours faithfully, JOHN GREEN, chairman; RICHARD DEAN, secretary."

WOLVERHAMPTON SHOW. — The *Canadian Horticulturist* for October devotes a long and eulogistic article, accompanied by an illustration, to this show.

SPECIMEN CODIÆUMS.—A correspondent has sent two photographs (which, however, are not suitable for reproduction), showing two fine Codiæums, grown by Mr. J. WARD, Riddings House Gardens, Alfreton. The first is known as Croton caudatus tortilis, with a single stem 5 ft. high, holding more than 100 leaves, and cultivated from a top removed from a plant in March last. The second is the well-known variety Reidii; it is 6 feet high, and has eighty-five beautifully coloured leaves, the largest measuring 22 inches long and 10 inches wide. Each specimen has its base well furnished with leaves.

UNIQUE FURNITURE MADE FROM LUCOMBE OAK (MORE THAN 100 YEARS OLD).—An old correspondent, in his very interesting remarks on the Lucombe tree at p. 221, mentioned the fact that the late Dr. WOODMAN, a former proprietor of the Exeter Nursery, possessed a suite of furniture made from the wood of the Lucombe Oak—in all probability from LUCOMBE'S original tree. Dr. WOODMAN'S widow is now living with her only daughter at Rose Cottage, Hurstmonceaux, Sussex, and is, we are sorry to learn, very feeble with age, almost blind, and in straitened circumstances. She still possesses four of the chairs, a table, and a four-tiered "what-not" of that suite in good condition, and although naturally somewhat reluctant to part with such valued and generally admired objects, yet under stress of hard times money is of importance to her just now. Mrs. WOODMAN remembers that Dr. WOODMAN stated that the furniture was made before the year 1800, to the order of his grandmother, whom we have reason to believe was LUCOMBE'S daughter or niece, and by the firm's own workpeople, in the famous horticultural building factory at the Exeter nursery. The furniture was made by that old lady's express desire after the pattern of some dainty fashioned furniture in rosewood and mahogany (the chairs with slip seats), which Mrs. WOODMAN also has in her possession. We wish that Mrs. WOODMAN had the means of sending these curiosities to one of the great auction-rooms in London, such as Messrs. PROTHEROE & MORRIS, or STEVENS', as we feel sure that, under the circumstances, there would be a very keen competition for them under the hammer. Mrs. WOODMAN has our warm sympathy, and we shall hope to hear that some *connoisseur*, or some Curator of a public garden or museum, has made her a tempting cash offer.

A NEW WORK BY PROFESSOR CHARLES S. SARGENT.—This work, entitled *Trees and Shrubs*, illustrating new or little known Ligneous plants, will be published in several large quarto volumes, four parts to a volume, the parts being published separately at 5 dollars net each. The book will not be confined wholly to North American plants, but will include also the woody plants of other regions, especially those of the northern hemisphere, which may be expected to flourish in the gardens of the United States and Europe. Thus the book is of practical value to those interested in landscape architecture. The first part will be published during the autumn of 1902. Each part will contain twenty-five plates from original drawings by Mr. C. E. FAXON, whose work has a wide reputation through Professor SARGENT'S *Silva* and *Garden and Forest*. HOUGHTON, MIFFLIN & Co., of Boston, are the publishers.

BRITISH-MADE JAM IN SPAIN.—We know not if our Foreign Secretary be fond of real jam, but whether he be so or not, he ought to think of the condition of British travellers in Spain, of the condition of the native lacking such health-giving articles of diet as is to be found in the score or so of jams, mixed and pure, found on the table at home, and not to be obtained in the land of the Toreador, unless at an exorbitant price. Of course the descendant of the Cid has jam, so-called, but such as a true Briton would disdain to place before the hardiest of his children or guests. At least, so much we learn from a letter received from a correspondent in Spain, who asks for treaty-facilities to enable British jam to be purchased all over the Peninsula at a fair price; and now that the South Africa trouble is off our hands, this matter will, we hope, get attention.

ALEXANDER KIRK.—A gardener who can point to a list of 500 prizes won in fair competition within thirty years has, in common speech, established a record. Mr. KIRK was for a time at Cumloden, and afterwards at Ernspil, Castle Douglas, N.B., where he was gardener to Mrs. MCKIE, but in 1879 he entered the service of J. T. PATON, Esq., Norwood, Alloa. In the matter of Grapes he has been a specially formidable competitor, but we find his name as a successful exhibitor of Roses, Dahlias, Melons, Tomatos, Chrysanthemums, Pines, and Cyclamens, a circumstance the more noteworthy as in some quarters there is a notion that a man who devotes much attention to one or to a few things, or one who is an eager exhibitor for prizes in special classes, is likely to neglect other departments. It is possible that this happens sometimes, but

ALEXANDER KIRK.
A Successful Cultivator and Exhibitor of Fruits.

assuredly the common experience is that the prizewinner, however much he may specialise, is nevertheless a conspicuously good "all-round gardener." This is further shown by the fact that at Alloa there are but two vineries, in which are accommodated a large number of varieties, some of which are usually afforded separate houses. The Vines too are mostly grafted, so that one stock bears several scions. Duke of Buccleuch and Gros Colmar are generally noted as specially fine in these vineries. As a Grape-grower, Mr. KIRK first showed his special prowess at the Carlisle International Show in 1877, when he competed against Mr. COLEMAN, then of Eastnor Castle Gardens. In 1878 he showed at the Crystal Palace a bunch of Trebbiano weighing 16 lbs. Since that time he has been a frequent exhibitor of Grapes at the Royal Caledonian and other shows, varying his achievements by obtaining cups for Roses in 1887, Chrysanthemums in 1890, at Stirling, the NEILL Prize in 1893. In 1894 he won the Champion Prize for Grapes at the Crystal Palace, and in 1899 a similar champion prize at Shrewsbury. But the mere enumeration of Mr. KIRK'S successes would take up much more space than we could afford.

NEW ZEALAND.—The report of the conference of fruit-growers and horticulturists held at Dunedin in 1901, and published by the Department of Agriculture, is a substantial publication, which speaks well for the progress of horticulture and fruit-culture in those islands. The subjects treated of are the culture of alpine plants, and of bees, the process of grafting, the cultivation of Chrysanthemums, Daffodils, and of fruit generally. The papers are very numerous and varied, and we are glad to see indications of the appreciation of the wonderful native flora, and the means to be taken for its protection. A National Horticultural Association on the lines of the Royal Horticultural Society was established.

LEGUMINOUS PLANTS AND NITROGEN.—Recent experiments have conclusively proved that Leguminous plants have the property, through the agency of bacteria in their roots, of assimilating nitrogen, a power not possessed by plants generally. After this discovery, it was naturally supposed that the application of dung and of nitrogenous manures generally, was, if not directly unnecessary, at least, *proportionately* so. But the last word has not been spoken on this subject. Gardeners are not likely to relinquish the use of dung for their Peas and Beans, and they will be confirmed in their opinions by some experiments of Dr. BERNARD DYER, which show that whereas the produce of dwarf Beans on a plot manured with dung, phosphates, and potash, but no nitrate, amounted to 2 tons 13 cwt. in 1900; the yield on a similar plot similarly treated, but with the addition of 2 cwt. of nitrate of soda, was 4 tons 6 cwt.

THE MEEHAN HORTICULTURAL SOCIETY.—The *employés* of THOMAS MEEHAN & SONS have formed themselves into a horticultural society. Mr. J. FRANKLIN MEEHAN defined the constituents of a successful horticultural society. "There is one thing in particular," he said, "that prevails in many societies of this kind, and which should be avoided, and that is, the desire to argue rather than to discuss. If you are not positive that your assertion is a fact, do not argue with the fellow that contradicts you, but listen to his statement, and if it is a convincing one, then discard your idea of the subject for his knowledge, or investigate for yourself." The society is for the *employés* exclusively, but all are eligible, from the boys who pull weeds to the oldest veteran. All who seek knowledge are invited to attend the meetings, where the combined practical knowledge of men versed in their respective departments in nursery work, affords, in this particular study, instruction that far excels any college course or text-book. It can thus be readily understood that not only the *employés* but the firm too is benefited by this commendable method of instruction.

LAMARCK'S HERBARIUM.—Botanists have often to take cognisance of the descriptions published by this great French botanist. But hitherto it has been difficult, if not quite impracticable, to verify their references by inspection of the actual specimens. A journey to Rostock is not always possible. Now, as we learn from an extract in the *Botanisches Central Blatt*, LAMARCK'S plants have been secured by the French Government, and may be consulted at the Paris Museum (Jardin des Plantes), where they have been arranged by Prof. BONNET.

THE MANURING OF VEGETABLE AND FRUIT CROPS.—A very valuable report on the effect of various manures on a large number of vegetable and fruit crops during the year 1900 has been forwarded to us by Dr. BERNARD DYER. The experiments were carried out on the farm of Mr. F. W. SHRIVELL near Tonbridge, and on that of Mr. GODWIN of East Peckham. The soil was naturally poor and infertile, but by assiduous spade-work and appropriate manuring the field has been converted into a fertile market-garden. The experiments are carried out with a view of ascertaining: 1, the economical value of heavy or

light dressings of stable-manure; 2, the possibility with regard to economy of replacing the dung in some measure by chemical fertilisers; 3, the quantity of nitrate of soda to be used with or without phosphates and potash; and, 4, the advantage if any of dispensing with dung altogether, and of substituting for it chemical fertilisers. The result is to show that while a certain quantity of dung is essential, its use is often highly extravagant, and that it may to a certain extent be most profitably supplanted by various artificial manures. We must refer our readers to the report itself, as the details are too numerous for us to insert; but we strongly commend the report (which may be had from Vinton & Co., New Bridge Street) to the notice of market-gardeners and fruit-cultivators.

The Guildford Hardy Plant Nursery, established by the late Mr. Selfe Leonard, has been acquired by Mr. Upton.

Streptocarpus.—Messrs. James Veitch & Sons, of Chelsea, send us a box of flowers of hybrid Streptocarpus from seed sown in January of this year. The plants are now in full flower at their Feltham nursery, and promise to remain so till after Christmas—indeed, there is no difficulty in having flowers continuously for nine months out of the twelve. The flowers sent are of various shades of colour from pure white, pink, violet, to rich purple—some self-coloured, others streaked or blotched with purple or brown. These hybrid Streptocarpus with which the names of Mr. Green, Mr. Watson of Kew, of Messrs. Veitch and Messrs. Laing, are honourably associated, are among the most striking acquisitions of horticulture in the last quarter of the nineteenth century (see *Gard. Chron.*, July 30, 1887). The first species introduced was S. Rexii, which was grown as a curiosity. Other species introduced successively were :—

S. Rexii, Bot. Mag., t. 3,005.
S. polyantha, Bot. Mag., t. 4,850.
S. Saundersii, Bot. Mag., t. 5,251.
S. lutea, Bot. Mag., t. 6,663, as parviflora.
S. Dunni, Bot. Mag., t. 6,903; flowers red.
S. parviflora, Bot. Mag., t. 7,036.
S. Galpini, Bot. Mag., t. 7,320.
S. Wendlandi, Bot. Mag., t. 7,447; *Gard. Chron.*, Oct. 16, 1897.

These species were hybridised in various ways, and have amply borne out our forecast made, when the plants were first raised or made public about 1887.

S. Greeni × was the first hybrid recorded. It was raised by Mr. Green, then gardener to Sir George Macleay, at Pendell Court, Bletchingley, out of S. Saundersii, by S. Rexii; see *Gard. Chron.*, March 4, 1882, p. 303.

S. Kewensis × was raised by Mr. Watson out of S. Rexii, by pollen of S. Dunni; *Gard. Chron.*, August 27, 1887, p. 247, fig. 61.

S. Watsoni ×, from S. parviflora by S. Dunnii; *Gard. Chron.*, July 30, 1887.

S. Dyeri ×, raised by Mr. Watson from S. Wendlandi, crossed with S. Dunni.

S. Bruanti × raised from S. Rexii, crossed with S. polyantha.

S. multiflora, Laing, a seedling from S. Rexii; *Gard. Chron.*, see fig. 109.

The species are natives of Natal, Transvaal, and other parts of South Africa.

Sale of Ceylon Orchids.—There was quite a lively time at the sale of Mr. Dodwell Browne's Orchids by Mr. A. Y. Daniel. Some 250 specimens were offered in about 100 lots, and the total realised was about R1,000. The highest price realised was R36 for the giant Orchid, purchased by Mr. Macmillan, Curator of the Botanic Gardens, for the Lieut.-Governor. His Excellency indeed secured quite a number of rare specimens. The prices paid ranged from R5 to R36. Mr. Macmillan bought one, Sarcochilus calceolus, for R36, and also a Grammatophyllum speciosum. Mr. J. H. de Saram bought a pretty Saccolabium Blumei (lately flowered, eight blooms), for R34, two Vanda suavis, and two V. Sanderiana going to Messrs. P. D. Siebel and Geo. de Saram for R20 each, reports the *Tropical Agriculturist*.

Fig. 109.- Streptocarpus multiflora.

INTERNATIONAL CONFERENCE ON PLANT BREEDING.

(*Continued from p.* 308.)

The afternoon session opened at 3 o'clock. Mr. Luther Burbank's paper on "Principles of Plant-breeding" was read by the Secretary. Mr. W. A. Orton, Assistant Pathologist, U.S. Department of Agriculture, talked on "The Breeding of Disease-resistant Varieties," giving an account of experimental work along this line in the case of Cotton, Cow-Peas, and Melons. He was followed by Professor Hays, of Minnesota, who spoke on "Breeding for Intrinsic Qualities." He treated the subject from the economic, ethical, and scientific standpoints, and advised the careful growing and testing of very large numbers of plants desired to be improved, and the selection from the very best of these.

Dr. S. A. Beach, of the New York Experiment Station, then read an interesting paper on the "Correlation between different parts of the Plant, in Form, Colour, and other Characteristics." He cited numerous instances where this correlation was very marked. In Grapes, the size of the leaf often indicates the size of the fruit. Dwarf Vines have been allowed to mature, and bear fruit; the fruit has been either small, or the clusters small, or both. The colour of the fruit of Raspberries could be foretold by the colour of the foliage and canes. The same was true in the case of some Roses. There was a correlation between the colour of the roots of Carnations, and the colour of their flowers. White Carnations have whitish roots; yellow kinds, yellowish roots: those with pink flowers have pinkish roots; with purple or dark-coloured blooms have similarly-coloured roots, and variegated sorts have pink and white roots.

The subject was one worthy of study by plant-breeders, as to determine what were undesirable sorts before they had been grown to maturity, would save much time and labour.

The Conference reconvened at 10 o'clock Wednesday morning. The following papers were read, either by the authors or by title:—Evolution under Domestication, by Professor Cook, of the Department of Agriculture; Individual Prepotency, by Will W. Tracy, of Detroit; some Possibilities, by C. L. Allen, New York; Fertile Hybrids of Teosinte and Maize, by Professor Harshberger, of University of Pennsylvania; and a paper on the Cytological Aspects of Hybrids, by W. A. Cannon, of Columbia University.

In the afternoon Professor NORTON, of the Department of Agriculture, spoke on the Improvement of Oats by Breeding. His remarks were followed by a discussion on the Breeding of Florists' Flowers. E. G. HILL, one of the essayists, referred to the work his firm had been doing in the breeding of Roses, Carnations, Begonias, and other plants. In the case of Roses, the results were not what had been expected. He said a thorough ripening of the seed was the most difficult part of the task, and that imperfect germination, or immature seed, produced sickly plants which were susceptible to mildew, black spot, &c. Many varieties had also shown a tendency to duplicate the parents.

He referred to the progress made in the obtaining of seedling Chrysanthemums and Carnations, and stated that Begonias presented an unlimited field for the hybridiser. He himself had, in this latter direction, obtained some good results (which were unfortunately lost) by crossing the Rex varieties with the shrubby kinds.

Mr. GEO. NICHOLSON told of successful experiments made by Messrs. VEITCH in crossing Begonia socotrana with some of the tuberous rooted Begonias, first crossing these, then going back to B. socotrana. Large flowers of the most magnificent colours had resulted from these crosses.

Referring to the Rose question, Mr. NICHOLSON stated that when in France recently, he had read in the *Lyons Horticole* an article by the editor of that periodical in which the latter stated, although it had been claimed by the Rose hybridisers of France that seedlings had been obtained from the variety La France, this was not the case, as La France was entirely sterile.

Professor SPILLMAN, of Washington, said there was a field of work open for the hybridiser to take plants of these multi-hybrids, or varieties of hybrids, select some of them, and see what types they will split up into. If Mendel's law be true, they certainly will split up into types. If a breeder cross two distinct varieties and propagate from the seed, no one can predict what the result will be in the first generation, but if the seed of the hybrid be taken, it is possible to tell what it will produce in the third generation.

Mr. O'MARA, referring to the question brought up by Mr. NICHOLSON, stated that several Rose growers in the States had disseminated varieties which were supposed to be descendants of the La France Rose; the point was an exceedingly interesting one. The same speaker also took exception to the statement that the hybridiser had succeeded in producing a larger flower than was found in former days. He thought the size seen in the Carnation to-day is partly attributable to cross-breeding, and partly to cultivation. He cited the case of the difference in the flowers of the Mrs. Thos. W. Lawson Carnation, grown for exhibition, and those seen on the market; also certain varieties of Roses; and it was within the range of reason to believe that these plants, if grown under the same conditions, should give the same size of blooms. He thought that probably they were attaching too much to the work of the hybridiser, and not enough to the man who cultivated the flowers—a statement which was applauded. Mr. O'MARA also referred to the fact that the blooms of the varieties Edwardsii and President DeGraw, at the time these were at their best and well grown, would compare with the flowers of Lizzie McGowan and other white kinds cultivated to-day.

Mr. SPILLMAN suggested that somebody save the seed of a Rose, after it has been cross fertilised, save each plant separately every year, and keep a record of what comes from it; the result would be surprising.

T. V. MUNSON, of Texas, spoke of having noticed in his grounds the past season a yellow flower on a Catherine Mermet Rose bush, which was as fine as the flower of the Maréchal Niel, and very much of the form of the bloom of Maman Cochet. He thought that other good varieties might sport from Mermet, and advised that a watch be exercised by the growers of that Rose.

Mr. WARD stated that, while ignorant of the existence of such a person as Mendel until yesterday, he had been working along what he believed to be Mendel's theory. He divided his Carnations into sections, by colours, breeding in each section, and he had got to a point where he had obtained reproductions. He had never saved seed from any particular plant, but would do so in the future.

Professor BAILEY followed with "A Medley of Pumpkins." His remarks were interspersed with considerable humour; he told the conference that after eight years in the crossing of Pumpkin, Squash, Gourds, &c, he had abandoned the work as hopeless.

Referring to Mendel's law, he characterised it as a good form of experimental search. It will result in a freer discussion of heredity than has happened before. While it might be possible to predict characters, still it was a question if varieties could be foretold; and with these characters might come some objectionable influences, such as susceptibility to disease, &c. He was glad Mr. O'MARA had brought forward the question of cultivation versus cross-breeding. He believed the best results would be obtained by a combination of both—a good variety and good cultivation. The ideal plant-breeding work of the future would be that done in the laboratory joined with that accomplished in the field.

Mr. MUNSON believed that too much stress should not be placed upon the application of any law. Plants were subject to environment and to the influence of fertilisers which brought about certain economic changes. While it was necessary to have laws, it was better to evolve something useful whereby these laws could be established than simply to work on theory.

Professor L. C. CORBETT, of the Bureau of Plant Industry, Washington, D. C., presented a paper on the "Improvement of Roses by Bud Selection," of which the following is an abstract:

The results which are recorded in the article prepared under the above title are based on a series of tests with Rose cuttings made from blind and flowering wood and covering a period of five years.

The work was undertaken to settle a point in dispute among commercial growers of Roses as to the relative value of plants grown from blind and flowering wood for flower production.

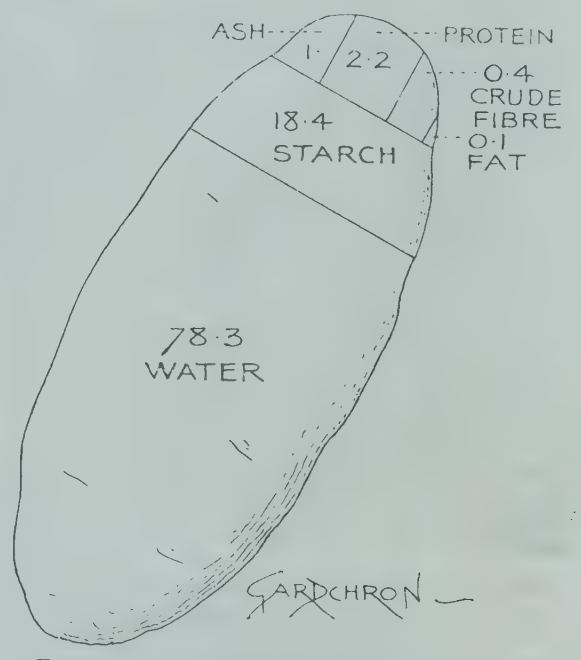

FIG. 110.—DIAGRAM SHOWING THE QUANTITATIVE COMPOSITION OF THE POTATO.

This naturally involved the problem of bud selection, which is offered as the excuse for asking the attention of this convention to a statement of the viewpoint, together with a summary of the results—

1. Do cuttings tend to perpetuate the individual peculiarities of the parent branch from which they are taken?

2. Can accumulative results be obtained from a continuous use of cuttings from wood with like habits, i.e., can the flowering habit of plants be increased by the continuous use of flowering wood, selected through successive years from plants which have themselves been produced from flowering wood?

The tendencies manifest in a branch are perpetuated from generation to generation in plants propagated by sexual processes.

It is equally demonstrated that cumulative results are not to be expected by selecting parts showing like tendencies through successive generations. The flowering habit of plants grown from flowering wood of plants which themselves had been produced from flowering wood, was not increased even in the fifth generation over what it was in the first. On the other hand, plants repeatedly propagated from blind wood through five successive generations were not markedly less floriferous in the fifth than in the first generation.

In both plants propagated from blind and from flowering wood, there was a slight tendency toward lessened flower production. This may be accounted for in that the stock from which the plants were propagated each season had been grown and forced under artificial conditions, and no attention was given to selecting cuttings from the strongest plants.

The commercial side of this experiment is, of course, the most important one from the standpoint of the practical grower. It is clearly more economical for the florist to produce his plants each season from blind wood, and since there is no cumulative effect from such a procedure, the plants so produced are not necessarily less floriferous than the parent stock. But where bloom rather than stock plants are sought, the tests are emphatic in declaring the superiority in this respect of plants grown from flowering wood. A Rose grower can well afford to send short-stemmed Roses to market during the months of January and February if by so doing he can secure sufficient flowering wood for propagating purposes to ensure a stand of flowering wood plants for the reproduction of the succeeding crop.

The evening session on Thursday was devoted to an illustrated lecture by Professor ALWOOD, of Virginia, on "Wine Ferments;" one by Dr. VAN FLEET, on "Hybridising Gladiolus Species;" which was followed by a stereopticon exhibition of some beautiful Gladiolus flowers, by CORNELIUS VAN BRUNT. In the course of his paper, which was read by Secretary BARRON, Dr. VAN FLEET stated that the Gladiolus oppositiflorus seemed to be a promising parent for producing fine light types for exhibition flowers. He found a tendency in the lighter colours to show less vitality and greater liability to degenerate than in the darker forms. One of the best sorts yet obtained in his work of crossing the Gladiolus was the variety Princeps, a cross between G. cruentus and one of the Childsii type. He mentioned that among the newest kinds introduced, was a yellow species from Madagascar, growing no larger than a Freesia, with flowers as beautiful as those of any Jonquil, and a winter blooming sort.

The paper was discussed by Mr. GROFF, of Ontario. He stated that his aim was to produce high-class commercial types for decoration, perpetuation, and multiplication, varieties that should possess sufficient vitality and stability, not only to maintain satisfactory conditions at home, but to reproduce themselves in any soil or climate in any part of the world to which the corms might be sent. He remarked also that his endeavour was to obtain the lighter colours particularly.

Mr. C. W. WARD, of Queens, followed with a talk on Carnations, outlining the work done by him in the breeding of these flowers. This year Mr. WARD has 7,500 seedling plants. He had introduced into commerce sixteen varieties, and has now twenty more that would be profitable were not others in the way. His advancement in seedling growing had been more rapid since he had divided his varieties into colour classes, and practiced what might be called in-breeding. He was not of the belief that the pollen parent had much influence on the colour. He kept a record of all the crosses made by him, and was thus able to tell the parentage on both sides of any seedling produced upon his place. Mr. Ward's remarks were listened to with the greatest attention by the scientists present, who complimented him on his systematic procedure, and evidenced great interest in the specialty in which he is engaged, showing that not only to the florist, but to the scientist as well, the Carnation appeals in a most potential manner. Mr. Ward's talk was illustrated with lantern-slides, showing the gradual evolution of varieties, and some winter scenes, demonstrative of what the florist has to contend with in the pursuit of his calling.

On Thursday, after the morning session, the members of the Conference visited the Bronx Park Botanical Gardens, where they were entertained at lunch by the garden authorities, and afterward enjoyed a visit to the greenhouses and plantations.

On Friday the delegates were the guests of Mr. F. W. Newbold, of Newburg, President of the American Rose Society, going to Newburg by boat. Visits were also made to the extensive grounds of Archibald Rogers and F. W. Vanderbilt in the vicinity of Poughkeepsie.

All the gentlemen present believe that the conference has been a most successful one, and that much of value will result from the collation and publication of the various papers presented, and the discussions which followed theron. *Florists' Exchange.*

THE COMPOSITION OF THE POTATO.

THE edible portion is made up of 78·3 per cent. water, 2·2 per cent. protein (total nitrogenous matter), 0·1 per cent. fat, 18·4 per cent. carbohydrates (principally starch), and 1 per cent. ash or mineral matter. Of the carbohydrates, 0·4 per cent. is made up of crude fibre and materials, which, in some of their modifications, constitute the cell walls of plants, and give them a rigid structure. The above figures, like others for composition of food materials, represent general averages, from which there are wide variations in individual specimens. Though the skin, cortical layer, and flesh differ somewhat in composition, they all resemble more or less closely that of the whole tuber. Fig. 110 shows in graphic form the composition of the Potato. *Journal of the Department of Agriculture of W. Australia.*

KEW MICROMETER.

THIS instrument (fig. 111) has been devised by Sir Joseph Hooker, and is made use of in the Royal Botanic Gardens of Kew, Edinburgh, and Calcutta, and of the Botanical Laboratory of Glasgow.

All botanists, entomologists, and others, who have to deal frequently with the minute measurements of parts of the object they examine, must have felt the inconvenience of the double measurement involved in the use of compasses and a measuring rule. The Kew Micrometer does away with one of these. By a simple adjustment of a scale to one arm of the micrometer, the length of an object is recorded up to a fraction of an inch or millimetre, and can be read off at leisure. For work under the microscope, this is an essential advantage, for a measurement may be recorded and a dissection proceeded with without lifting the eye from the eyepiece of that instrument.

These are not the only merits of the micrometer. One side of the scale being graduated to inches and fractions, the other to millimetres; the instrument not only gives measurements in both scales, but it also furnishes a ready means of turning the one scale into the other without calculation—a matter of great moment at the present time, when two scales are in use in several countries. The instrument is 4 inches in length, and the long arm is graduated to tenths of inches, and can therefore be used for larger measurements.

It can be carried in the waistcoat pocket. The maker is Andrew H. Baird, scientific instrument maker, 33 to 39, Lothian Street, Edinburgh.

HOME CORRESPONDENCE.

CHEAP FRUIT.—On p. 284 of the *Gardeners' Chronicle* of October 18, one of your correspondents puts in a plea for cheaper fruit. I do not think he can be aware of the present price of Grapes as quoted in your list at the end of your paper, and such prices I fully confirm from watching the supply of Grapes arrive at the markets. It is simply a question of packing the fruit which must be attended to, and I have taken considerable trouble to go into this question by visiting the receivers of Grapes in Leadenhall Market, and they admit that if the Grapes were put into small boxes containing 1 lb. and upwards, as the French Grapes are packed, the grower stencilling his name on the boxes and the weight of the contents, if he so desires it, then these boxes could be packed and sent up by passenger train to market. It is most disappointing at the present time to go into the markets and find a large basket with a handle, weighing from 12 to 18 lb., containing Grapes with a full bloom upon them; but this is not a convenient package that can be taken away by the retail purchaser, and the ordinary course is to buy a few pounds, put them into a punnet with paper, &c., and then put this into a mat bag; whereas, if they were sent up in cheap cardboard boxes (which would cost about 1*d.* each), holding from 1 to 3 lb. of Grapes, they would travel safely for a long distance by rail. Then supposing that the packer of the Grapes desired to send 4 to 6 lb. in wooden boxes, these boxes could be made in the vinery, fastened with wire nails, and they would not cost more than 2*d.* each, because the wood is cut abroad, ready to the size required. The Grape and fruit growers must face this question, as they have had to do in America. The difference is that with the American class of fruit they can pack 10,000 boxes a day, and get them ready for the railway trains; and the producer of the fruit is paid for the amount of fruit he delivers to the warehouses, which establishments undertake to do the packing, forwarding, distribution, and sale. If my plan is followed, early Strawberries and other delicate fruit could be packed and sent in this way ready for the retailer to purchase. The growers of Grapes, for instance, perhaps are not aware of the enormous development that has taken place in the making of cheap boxes for packing goods. This has been brought about by the Post Office giving every encouragement for parcels to be sent by the post, where it is very important to keep down the weight and ensure strength, to enable the goods to arrive in safety at their destination. *Thos. Christy.*

WARTS OR KNAURS ON TRUNK OF TULIP TREE.—At Sybil Hill, Clontarf, belonging to the demesne of St. Anne's, there is growing a Tulip tree (Liriodendron tulipiferum), and on the lower part of the gnarled old trunk large rounded warts or "knaurs" are clustered. They vary in size from 2 to 3½ inches across, and look like rough-skinned Potatos. Similar warts on Beech and other trees are not uncommon, but I never happen to have seen a Tulip tree produce them before. [Nor we. ED.] They consist of thick, soft, fleshy "bark," surrounding a hard, woody core. Their branch-like character is shown by a twig and leaf growing from the smaller examples sent herewith. How or why they are produced is not very evident. The corrugated portion of the bole on which they grow is, however, much shaded by surrounding shrubs. *F. W. B.*

YUCCA GLORIOSA.—I have never succeeded in obtaining seed from Yucca gloriosa; the fertilisation of the flowers of this plant being effected by an insect known as Pronuba yuccasella. The Department of Agriculture at Washington has on two occasions sent me the chrysalides of this

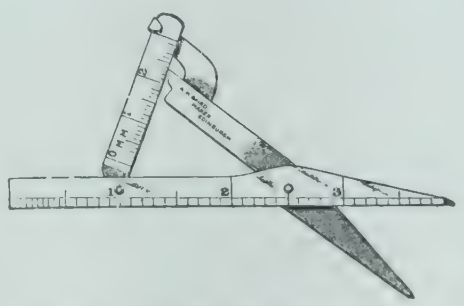

FIG. 111.—THE KEW MICROMETER.

moth, and on the last occasion I so far succeeded as to have the insects running about under my Yuccas; the local ants, however, fiercely resented the introduction of these strangers, who were killed and eaten, and thus an interesting experiment failed. *T. Hanbury, La Mortola.*

MOST SAD.—Scarcely less than distressing, so far as relates to the gardeners of the kingdom, is the statement of a lady in your advertising columns of last week to the effect that for a gardener's place she had received much over one thousand applications in answer to an advertisement published in the *Gardeners' Chronicle*. To read such a statement is to fill the heart of any feeling horticulturist with profound sadness. Probably not all the applicants are out of employment, but the greater number of them doubtless are. What a large number of anxious hearts must have hung on the result of these applications! and how in such applications repeated, hope deferred makes the heart sick! How helpless we are all in face of so distressing a fact; how little is it possible to do to find a remedy. The obvious conclusion is that there are far more gardeners wanting work than there are places for them to fill. Are we really making gardeners too fast? Are women from colleges taking positions formerly held by men? or how has this terrible condition of things in relation to the gardeners' labour market arisen? We have before heard of applications for a place running into hundreds, but now it is found to exceed a thousand it is no longer possible to view the position with indifference. *A. D.*

GLASSHOUSES FOR FRUIT.—I had imagined that glass manufacture was a discovery made since the old Roman days; still further, that as applied to the protection of fruit-trees, it was relatively of modern application; but there are lines quoted by a correspondent of the *Daily News*, anent a discussion in that paper on the merits or demerits of open windows in hospital wards, which seem to show, assuming Martial's poetry to be rightly interpreted, that not only was glass in use in old Roman days, but that it was even then employed to protect fruit trees from the frosts of spring. Can that have been the case, or is the rendering now furnished but a joke of the free-and-easy kind?—

"Lest the frail fruit trees bear the hoarfrost's brunt,
Or the keen wind the tender leaflets bite,
There crystal panes are interposed in front,
That only will admit the heat and light,
While still my chamber window stands ajar—
A room whence Boreas himself would flee.
If such as these an old friend's quarters are,
I'd rather pay a visit to your tree."

It would indeed be interesting to learn whether the Romans were so advanced in civilisation, and especially in gardening knowledge, that they had glass for use, and employed it in the way indicated. Were that so, there are things in the world far older than we have so far given them credit for. *A. D.* [We believe no reasonable doubt can be entertained as to the use of glass by the Romans for this purpose. ED.]

CUCUMBER DISEASE.—I have read with interest the several accounts of the so-called Cucumber disease that have been published in the *Gardeners' Chronicle* this last few weeks, and having grown Cucumbers for the last sixteen years, and part of the time in the largest establishments in England, it may interest your readers to have my opinion upon the subject. This year, commencing last February, I have had seven houses, measuring in all 800 feet, entirely under my care, and I can honestly say that I did not have a sign of this disease till about the end of August, when I had to let out the fires on account of having to make alterations in most of the hot water-pipes. I noticed that the disease started on plants growing near to the doors which were mostly used, and where there was a pane or two of glass missing. I believe that I am the only market grower who has not been troubled with this disease in the neighbourhood (Hampton), and situated in the centre of most of the growers. In June we had several nurserymen after the plants, at which time mine had not got a dead or brown leaf on them. I owe my success to being able to put the fire-heat on as soon as the temperature fell through cold winds or rain. I think I can say that it was as cold back in the summer as it is at the present time. The best and only profitable method of growing Cucumbers is damping and shading the houses with whiting lime-wash; but not affording shading before the thermometer reaches 100° F. should air be given, and then only enough to keep the heat below 110°. I have had my Cucumber-houses at 105°, and hosed them with cold water from the main without the plants showing any ill effects whatever. It is quite right what your correspondent, "C. E. P., Enfield," says about the disease being due to the bad season. My firm opinion is that it is caused by cold water dripping on to the leaves, which, with cold draughts, sets up [favours the growth of] mildew or other fungoid disease, the same as on forced Roses, &c. I can tell you that my houses have been a success since they were first planted until they were neglected through the cause above stated. One more item, I put a 4½-inch flower-pot full of slaked lime to every wheelbarrow-load of top-dressing. *H. W. Daniels, Swancott Villa, Hampton.*

INTERNATIONAL CONFERENCE ON PLANT-BREEDING.—Kindly allow me a little space to correct an error in my statement on hybridising. I did not wish to write "Hybrids are and remain infertile" in an absolute sense. I wished to write "Hybrids often become infertile," and if crossed, the offsprings mostly are infertile. *Max Leichtlin, Baden-Baden.*

FOREIGN *versus* HOME PRICES.—I read with some little interest the article of "C. T. D.'s" on p. 253 of a recent issue, wherein one of your correspondents says that he got from one of the Dutch florists, plants at 8*s.* 11*d.* for what the English wanted 19*s.* 8*d.* I do not know what the plants were, but, if I may judge from the way some of the Dutchmen have served me in the past, I should say the price without the article before buying is no criterion; in fact, some Dutchmen quote low prices, and then meet the price by sending inferior plants, bulbs, &c. My trouble in dealing with the Dutchmen myself is to get anyone to serve me uniformly well two or three years in

succession; some things they will serve you very well with, and others are very bad; one time they will quote you 20s. for an article, and another time they will want 30s. for a very much worse thing. So I think to give credit for English traders it would be well if "C. T. D." would give us some further particulars, for I, and perhaps many others, would look upon him as we have to look upon a good many more, who unfortunately think they can never get anything so good in their own country as from the foreigner, forgetting that many foreigners, the last two or three years, have done everything they could to cause ill-feeling, war, and everything else that is bad. *R. S.*

TOMATOS.—I send you three types of market fruit. No. 1 is a real marketer, grown largely by Rochfords; it is a cross between Comet and Chemin Rouge. This variety is good in all points, for either planting-out or pot culture; again, good for either early or late crops, a prolific bearer and a quick ripener, of full size, and flavour all that can be desired; fruit is also solid, and has few seeds. No. 2 is a local seedling, as nearly round as I can put my hand on to-day—what I call a deep fruit. If 1 and 2 were timed when colour begins, the grower would note a week or ten days' difference in the actual finishing of No. 2, it being this much longer in ripening. No. 3 is Chemin Rouge. As you will note, this particular fruit is what I call sun-scalded; many fruits are so affected, and when sent to market, the selling value is diminished. I do not think any disease has so far developed. This fruit I know is not quite true for Chemin. I send it, however, on account of the defect. *Stephen Castle, Oct.* 27.

EXPERIMENTAL MANURING.—Mr. A. Dean's letter in the *Gardeners' Chronicle* of October 18 does not breathe that spirit of charity, which "is kind" and "thinketh no evil." Nevertheless, I feel that it is due to your readers that I should clear up the somewhat equivocal position in which his letter may, to those who are unacquainted with it, place the experimental work which I have for some years directed at Hadlow, with the co-operation of my friend Mr. Shrivell. There is no mystery about the matter, nor is Mr. Dean correct in saying that the experiments are conducted "on behalf of a manure agency." I have frequently publicly acknowledged my indebtedness to the source of the endowment under which we have been able to undertake what were, at their inception, a unique set of field experiments, and would be still unique but for the fact that the interest they have awakened has led to their repetition and confirmation at various agricultural stations both in Europe and in America. The funds necessary for our work are provided by a grant made to us by the permanent Nitrate Committee. This body is not a "manure agency," but a non-trading representative Committee appointed for various purposes, by the nitrate producers of the West Coast of South America, and aided from time to time by grants from the Chilian Government. Among its objects is that of assisting and encouraging research into the conditions in which nitrate of soda can be most profitably used as manure. I happened some ten years ago to be consulted professionally by Mr. Hillman, the Secretary of this Committee, as to the drawing up of some simple instructions for the use of nitrate in vegetable growing; a subject on which enquiries were occasionally reaching him from market gardeners and others, who happened to have heard from farming friends, something of the virtues of this particular fertiliser and were anxious to try it for the minor purposes of vegetable and fruit growing. I found that little or no definite information appeared to exist as to the best mode of using either this or any other "artificial" fertiliser for vegetables or market garden crops. Endless experiments had been made with all sorts of fertilisers on the ordinary farm, but scarcely any had been recorded in the market garden or the domestic garden; and all the advice I could give was but meagre, cautious, and based largely on possibly misleading analogy. To meet my difficulty, the Committee proposed, if I would undertake the task, to defray the expense of a series of experiments. I gladly availed myself of the opportunity thus opened to me, provided that I were allowed an absolutely free hand to direct or conduct the experiments in my own way, and to publish and make freely known the results of the trials, whether favourable or unfavourable to nitrate of soda, and also to investigate at the same time such other manurial problems relating to market gardening as might commend themselves to my judgment. The Committee very generously acceded to my stipulation, and has loyally continued ever since to support the experiments without seeking in any way to interfere with my independence of control. The experiments relate not merely to the use of nitrate of soda, but also involve the use of phosphatic fertilisers; and they have, moreover, included from the beginning a systematic and searching enquiry into the utility of potash salts for different crops grown under different circumstances; but no contribution of any kind has been made to the cost of our experiments, or of their publication, by producers, manufacturers, or vendors either of phosphates or of potash salts, any more than by the producers or vendors of the London dung which we have proved to be essential to some crops and extravagant for others. If our experiments lead the market gardener to the knowledge that he can best carry on his business if he supplements the dung, on which he has too often relied, by availing himself of the various other fertilising aids which science and civilisation have furnished for his use, it may be at once admitted that some measure of pecuniary advantage may simultaneously result to those who happen to be engaged in the production and sale of such fertilisers. But the pecuniary benefit likely to result from our work to the single industry whose representatives are generous enough to defray the cost of our experiments is but a very small matter, for the industry is a large one, the producers are many, and the profit on the wholesale production of nitrate is slight; while, moreover, the gardening industry is a small one compared with the large industry of general agriculture, which consumes the bulk of the world's production of nitrate. I wish, however, in view of Mr. A. Dean's letter, to state quite clearly that no help of any kind has been afforded to us, directly or indirectly, by any company, firm, agency, or individual, having anything whatever to do with the direct supply, either to the farmer or to the gardener, of nitrate of soda, or of any other fertiliser. My difficulty at the outset of the experiments was to choose a colleague possessed of the necessary qualifications for the work. To keep over 300 experimental plots in perfect order, and to weigh, measure, and record every pound of manure applied, and every pound of produce obtained, is no light task, and entails powers of good organisation and supervision. At last I was fortunate in persuading my old pupil, Mr. Shrivell, of Golden Green, Hadlow—a well-known farmer and Hop-grower, who in earlier years had had the advantage of having been trained as a chemist—to join me in the work, of which he has proved himself not only a most able executor, but a lucid and enthusiastic exponent. Many hundreds of vegetable-growers are by this time, as I know from their testimony, the richer for the lessons they have learned from Mr. Shrivell. His own pecuniary interest is merely that the grant in aid of our work affords him a very modest compensation for the diversion of a large portion of his time from his proper business of Hop-farming, and for the extra assistance thereby entailed on his farm. Pecuniarily, Mr. Shrivell would probably be better off if he had never aided me in establishing the Hadlow Experiment Station; but many of our market gardeners would have been the poorer. If the Royal Horticultural Society, or any other public body, would come forward, as Mr. A. Dean suggests would be desirable, and endow the Hadlow Experiment Station on purely public grounds, I for one should be well satisfied to continue the work under their endowment; but meantime let us not be ungrateful to the Permanent Nitrate Committee for the results of the work which they have enabled us to carry on to the good of the public. May I finally say to Mr. A. Dean that it was I personally who sent him a copy of our last Annual Report, his name being down in my notebook—given to me at some time by I forget whom—as that of one who would be likely to be interested in the subject. I was not, when I posted it, aware that Mr. Shrivell was lecturing before the Royal Horticultural Society, or that Mr. Dean, being present at the lecture, might regard my "voluminous report" as conveying to him superfluous information. I am sorry to read that he finds a "large grain of salt" necessary for the digestion of its contents. I might perhaps not unreasonably have hoped that my position as a public officer, and my many years of service in that capacity, might have enabled him to dispense with that condimentary addition. *Bernard Dyer, D.Sc., 17, Great Tower Street, Oct.* 29, 1902.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

OCTOBER 21.—*Present:* Dr M. T. Masters, F.R.S. (in the Chair); Messrs. Massee, Saunders, Bowles, Worsley, Holmes, Druery, Hooper, Douglas, Gordon, Shea, and Paul, Drs. Cooke and Rendle, Revs. W. Wilks and G. Henslow (Hon. Sec.).

THE HALL.—The Chairman read a letter announcing a donation from H.R.H. the Prince of Wales towards the fund now being raised for the purpose of erecting a Hall; in relation to which subject Dr. Masters gave a brief account of his visit to the gardens and building of the Horticultural Society of Picardy, at Amiens. A fuller description will be found in the *Gardeners' Chronicle* of October 11, 1902, p. 267.

Roses.—Mr. WILKS exhibited specimens he had received from the herbarium of M. Maurice de Vilmorin of Rosa sericea, with long decurrent thorns; of R. aculeata, with very large thorns; and illustrations and photos of R. macrophylla, a large crimson-flowered species.

Begonia, crested.—Sir TREVOR LAWRENCE sent several flowers showing different degrees of cresting of the petals. In some the entire petal was reduced to a midrib covered with projections.

Leaf-miner.—Mr. HOLMES showed specimens of a Leaf-miner on Hogweed, which Mr. SAUNDERS undertook to examine.

Cankerous Growth.—Mr. HOOPER showed some fruit-tree branches with a cankerous growth, and Daffodil bulbs attacked by the dipterous fly, Merodon.

Auricula aphis.—Mr. DOUGLAS brought plants of Auricula, the roots of which were infested with an aphis, but the plants themselves were perfectly healthy. The aphis appeared to be Trama Auriculæ, and had been observed twenty-five years ago.

Vigour in Hybrids.—Mr. DOUGLAS called attention to a plant of a hybrid between Cattleya Dowiana and C. velutina; the first parent has usually three to five flowers, and the latter three only; but the hybrid bore nine. The specimen illustrated the usual result of increased vigour in hybrid plants, sometimes at the expense of fertility. It was observed that hybrids of Cypripedium Fairreanum will not cross. Mr. PAUL remarked that extraordinary growth occurred in hybrid Crimson Rambler Roses, long shoots 16 feet in length occurring in one season, but accompanied with some decrease in the production of flowers.

Carnation Leaves Rooting.—Mr. DOUGLAS brought leaves of a Tree Carnation, one branch of which bore leaves with minute roots, arising from the pericycle of the fibro-vascular bundles, and issuing from beneath the epidermis all along the midrib. Mr. Massee observed that it was not infrequent when eelworms were at the roots, the roots then often appear from the stem as well as from the leaves.

Exhibition of Fungi.—Mr. DOUGLAS also suggested that it would be advisable to hold an exhibition of fungi, displaying the edible and poisonous species in separate collections, to be collected by the members of the committee or other persons interested in these plants. Mr. Wilks proposed October 13, 1903, for the first exhibition.

Cactus Blistered.—Mr. SHEA showed seedling plants with blistered patches. Mr. Worsley observed that he was familiar with the occurrence for many years on old plants, but this appeared to be the first instance on young plants. He had noticed flies on it, and thought that possibly they might have been the initial cause of the mischief, the fungus following.

Peach Mildewed.—Mr. E. SALMON sent a history of a Peach raised from a stone, first in a pot, then in an unsuitable environment, and finally in his garden, nine years ago. The one sent was attacked by the ordinary Peach-mould.

Lime-trees and Undergrowth.—A member inquired if there was any truth in the belief that nothing will grow under Lime trees. It was not generally accepted by the Committee; but a Swede (a gardener) said that it was the common belief in Sweden that such was the case.

Pine-bark and Coccus.—Mr. SAUNDERS reports as follows on specimen sent to the last meeting: "As far as I could see it was a different species to that which infests Beeches; but as I was not quite sure I sent specimens to Mr. Newstead, who replies as follows: 'I think the insect you sent to me on Fir-bark is the Pine-aphis (Chermes pini), but I could not, unfortunately, extract an insect from the white sacs. Could you send me a further and plentiful supply in order that I may make quite sure of the insect?' It is pretty certain that Mr. Newstead thinks it is a different species to that on the Beech, for he suggests that it is a Chermes whereas the other species is a Pseudo-coccus."

Ipomœa rubro-cærulea.—Mr. WORSLEY showed a blossom of this plant, observing that it has been described as being at first red, then blue, but in his experience this order was reversed, as it opens a deep blue, and then becomes of a crimson tint.

Arctotis sp.—He also showed specimens of A. arborescens (white), Jacquin, and A. Leichtlini (yellow). The first-named species was the first to be introduced from South Africa. The latter is called the South African Daisy, as it has white ray florets touched outside with crimson.

Gnaurs or Embryo buds on Tulip-tree.—Dr. MASTERS showed examples, sent by Mr. Burbidge, of these, which are common on Beeches, Cedars, and Deodars, but not seen before on Tulip-trees (see p. 329).

Gladiolus.—Mr. JENKINS, Hampton Hill, sent a very long spike of a crimson variety; the height was 3 ft. 8 ins. It was the result of a corm which had been neglected from October, 19 0, to June, 1902, when it was planted.

Passiflora, n. sp.—Dr. MASTERS showed a specimen which had been accidentally introduced by Messrs. Charlesworth with a Cattleya Mossiæ; it had not yet been described or named, but a description will shortly be published. The foliage is of a highly ornamental character.

Bunt, n. sp., introduced.—Mr. MASSEE described the introduction into England of a new species of this fungus as follows: "Twelve years ago one of the cereal bunt fungi was sent from Patagonia and Bahia Blanca, where it was stated to be very abundant. The host

plants were Bromus unioloides, H.B.K., and Festuca bromoides, L. As usual, the fungus formed a black mass in the ovary of the host plant, and proved to be a new species — Cintractia patagonica, Cooke, and Massee. Quite recently a traveller in these regions observed that Bromus unioloides was extensively grown, mixed with Lucerne for fodder. Seed of the Bromus was brought home and sown in Lincolnshire, and on producing fruit was observed to be attacked by the Cintractia. The above illustrates one of the methods by which injurious fungi are introduced from one country to another, and unless great care be taken to stamp out the newcomer, it is just possible that we may eventually have to add another cereal fungus-pest to our already large list."

NATIONAL CHRYSANTHEMUM.

THE CLASSIFICATION COMMITTEE.

AT a meeting of the above Committee, held at the Royal Aquarium, Westminster, on October 7, Mr. Norman Davis, Framfield, was elected Chairman of the Committee.

It was resolved that the following two varieties, Lily Mountford and Hilda Chamberlain, be bracketed as synonymous in the Society's list as "too-much-alike" Japanese varieties. That the following be bracketed as synonymous in the list of too-much-alike early-flowering varieties, Harvest Home and Cranford Beauty. That the following Pompon varieties, Martinmas, La Vierge, and Vesuve, be transferred from the early-flowering Pompon section, to the early large-flowering section. It was further resolved that the heading in the Society's Catalogue "Japanese Early Flowering Varieties," be altered to "Large Flowering Early Varieties," so as to include all types except Pompons. That a new class be added to the Society's Catalogue now in course of compilation, to embrace market and decorative varieties other than early flowering.

MONDAY, OCTOBER 27. — A number of interesting novelties challenged the attention of the above Society on the above date, but owing to the lateness of the season, the rush of new varieties is not so heavy as is usual; in another fortnight a considerable number may be anticipated.

Additions to the incurved section are now so few that a fine variety is always warmly welcomed, such an one is—

Cecil Cutts, a seedling raised by Mr. H. Weeks, Thrumpton Hall Gardens, Derby; this variety was seen last year, and admitted to be promising, it has now developed into a large, full, symmetrical flower of a deep yellow colour, and it is distinct from any other that we have. First-class Certificate to Mr. T. MUDD, Thorneywood, Nottingham. Another new incurved is Madge Cray (Seward), a good sized flower, with a pinkish-salmon base and yellow centre; a little rough as shown, but likely to be seen in better character later on. From Mr. W. SEWARD, The Firs, Hanwell.

First-class Certificates were awarded in almost every case unanimously to the following Japanese varieties:

Miss Olive Miller. — The surface of the petals pale purplish-mauve; the reverse silvery-pink, the long twisted florets incurving so much as to make the surface of the flower exposed to view, silvery. A full deep flower of a most attractive character. From Mr. GEO. MILEHAM, The Gardens, Emlyn House, Leatherhead.

Miss Mildred Ward.—Said to be from a cross between Pride of Madford and Madame Carnot, and intermediate in colour between Charles Davis and Lady Hanham. Of the build of Madame Carnot, the prevailing tint, a pinkish-salmon. A good addition to the Madame Carnot group. From Mr. T. BULLIMORE, The Gardens, Canons Park, Edgeware.

George Penford (*Penford*).—A rich crimson flower, with a reverse of gold. It may be described as a glorified Edwin Molyneux, bright, both on the surface and reverse; large, full, and extra fine.

Florence Penford (*Penford*).—Yellow, with a delicate amber reverse, a flower of charming character; and an incurving Japanese, with long curling florets. Both from Mr. Chas. Penford, The Gardens, Leigh Park, Havant.

Decorative variety Ryecroft Beauty, of a pretty shade of lilac-pink, dwarf and very free, was commended. From Mr. H. J. JONES, Ryecroft Nursery, Lewisham.

Early flowering Gladys Gray, a bright yellow sport from Edward Le Fort, was shown by Mr. WILLIAM GRAY, florist, Thorngumbald, Hull. The flowers were small, being from the open ground in that cold district; but they would no doubt come much finer in the South (Vote of Thanks).

Mr. W. J. GODFREY, nurseryman, Exmouth, had a batch of his new varieties, though not one of them obtained an award. The most fancied were Mr. H. Emmerton, an Australian variety, clear yellow, darker in the centre; F. S. Vallis, which was thought to be too much like G. J. Warren; Exmouth, very bright; Duke of Devonshire, yellow with pencilled lines of crimson, and Wilfrid H. Godfrey, and Grandeur, two of the fine crimson varieties Mr. GODFREY has produced.

Mr. H. PERKINS, The Gardens, Greenlands, Henley-on-Thames, had Japanese Miss Smith, a large white variety in the way of Mutual Friend; and Henry Perkins, pale orange-crimson flower.

Mr. G. SHAWYER, Cranford, Hounslow, had a plant and blooms of his market variety, Queen of Yellows.

BECKENHAM HORTICULTURAL.

"THE Growth and Cultivation of the Misleto" was the subject of a paper read by Mr. W. Groves, Grove House, Shortlands, October 24. For a quarter of a century, Mr. Groves has made Misleto a matter of special study, and he has proved by careful observation and experiment that Darwin was wrong in assuming that the seeds passed through birds before germinating on their host. Birds took the berries for the viscid substance surrounding the seeds, which was pleasant to the taste. The seeds themselves were very often rejected, the birds wiping them off their beaks on the trees. The seeds, if swallowed, being so thinly coated could not pass the gizzard of a bird undigested; this had been proved by experiment. Quite recently Mr. Groves had discovered that having gorged themselves with berries, birds often vomited the seeds. The branch of an Apple-tree containing a number of seeds germinating was shown to illustrate this. The paper throughout teemed with interesting facts relating to fertilisation, propagation, and the growth of this interesting parasite. One remarkable fact was, that although it would flourish freely on the Apple, Pear, Lime, Whitethorn, Poplar, &c., the best results were always obtained when transferred from one host to another of the same species.

Mr. G. N. Hooper, F.R.G.S., occupied the chair. He thought a census of the gardeners in Beckenham might be taken, for not only could the Church House be filled, but the Town Hall likewise. *M. W.*

THE LATE JOHN BAXTER.

BIRMINGHAM GARDENERS'.

OCTOBER 20.—At the meeting of the Birmingham Gardeners' Association on the above date, a paper on "The Evolution and Improvement of Fruit" was read by Mr. R. Lewis Castle, Manager of the Woburn Experimental Fruit Farm. Reference was made to the wild forms, from which it is probable our principal Pears originated, and specimens were shown of some in contrast with the best varieties of modern times. The methods of work, and the results accomplished by the leading fruit-raisers were described, and the directions in which to proceed for further advances were noticed. Under the head of Improvement of Fruits, hints were given on cultivation, selection, seed-raising, &c.

SOCIÉTÉ FRANÇAISE D'HORTICULTURE DE LONDRES.

MR. C. HARMAN PAYNE was, on Saturday last, the guest of the above Society, of which he is one of the most respected members, and which he joined when it was quite in its infancy. Mr. Payne's labours on behalf of the French raisers of Chrysanthemums, were graciously acknowledged some five years ago by the Government of the French Republic, who bestowed upon him the honour and title of *Chevalier du Mérite Agricole*. On the occasion of his recent elevation or appointment to the rank of Officer of the same Order, the members of the French Society decided to present him with a miniature officer's cross, and the presentation taking place on Saturday evening last, at the Society's Rooms, 61, Long Acre, W.C.

The meeting, which on this special occasion was limited to the staff of the said Institution, and a few personal friends of the new officer, had the character of a social gathering. It was held under the chairmanship of Mr. G. Schneider, who, in the name of the titulary members of the French Society, and with a few appropriate words, handed the gift to Mr. Payne, who, in a few well chosen sentences, full of international sympathy, acknowledged it, and graciously thanked the staff of the Society and the company, for the honour done to him.

Messrs. T. Bevan, B. Wynne, and Percy Waterer, having also added their share of praise towards the new officer, and recapitulated the services he has rendered to French and English horticulture, the proceedings terminated.

Mr. C. Harman Payne has the honour of being the first Chevalier of the *Merite Agricole* of British nationality.

LIVERPOOL FRUIT & ROOT SHOW.

OCTOBER 25.—The thirteenth annual show was held in the North Haymarket on the above date, the Lord Mayor, Alderman Charles Petrie, performing the opening ceremony. Lord Derby and his son, the Hon. Arthur Stanley, M.P., made a tour of inspection, and expressed their delight at the work of the committee.

The show of Potatos was imposing, and visitors could not fail to derive benefit from the splendid examples sent from all parts, and many prizes were awarded for Kidneys and Rounds in white and coloured varieties. Special prizes were offered by Messrs. Sutton & Sons, Reading; Messrs. Webb & Sons, Stourport; Messrs. Fidler & Sons, Reading; and Mr. J. Niven.

The show of roots and vegetables was superb, and for special and other prizes there was keen competition. The four special prizes fell to Mr. MACKARELL, with Ribston Pippin, Beurré Hardy, Warner's King, and Pitmaston Duchess; Muscat of Alexandria from Mr. B. ASHTON, was adjudged the best dish of fruit.

Messrs. Dicksons, Ltd; Gartons, Warrington; Fidler, Reading; Middlehurst, Liverpool; W. Ker & Co., Liverpool; and others contributed effective stands.

Obituary.

JOHN BAXTER.—This much respected florist died on the 23rd ult., at the age of sixty-six. He was forty-one years gardener on Colonel McCall's estate of Daldowie, near Glasgow, and it was while located there he did his life's work in the way of improving the Viola. In this connection his name will long be remembered and cherished. On November 8, 1900, Mr. Baxter was the recipient of a handsome presentation, and in our issue of November 17, 1900, an account is given of the meeting at which it was made, along with a portrait and sketch of his career.

DAVID SAUNDERS.—There passed away, after a week's illness, on Sunday morning, October 12, at a comparatively early age, David Saunders, senior partner of the firm of Messrs. Michael Saunders & Son, nurserymen, Friar's Walk, Cork; and of him it may be said that in matters relating to Roses, fruit trees, and Conifers, he will be greatly missed. There was scarcely a horticultural exhibition of any note held south of Dublin during the last thirty or thirty-five years at which he was not present, and at the same time the soul and life of the numerous friends he met on this occasion. "Friendship is but of slow growth, and never thrives unless engrafted upon a 'stock or scion' known of reciprocal merit." Of him it may be said he well deserved the appellation, for never did he allow a gardener out of place to want for work while he could employ him; and that precious virtue of being charitable to the needy, combined with a forgiving spirit, were amongst his more prominent attributes. He was laid to rest in the new cemetery at Cork, on Tuesday, the 14th, followed to the grave by many of the citizens. He leaves a widow and a numerous family, and the business will be carried on as usual by his eldest son, assisted by his foreman, Mr. Hawker.

TRADE NOTICE.

DISSOLUTION OF PARTNERSHIP.—The firm of John Laing & Sons, Nurserymen, Forest Hill, has been dissolved by mutual consent, and the business will in future be carried on by John Alexander Laing.

ENQUIRIES.

EUCALYPTUS URNIGERA.—M. Buysman, Middleburg, Holland, is desirous of obtaining seeds of this species. Can any reader oblige him?

LINARIA HENDERSONI.—Where is this plant described? It is not in the *Index Kewensis*, or the list in the *Kew Bulletin*. *B.*

A correspondent (*F. A.*) evidently thinking an editor ought to be encyclopædic in his knowledge, desires to be told how he may cause Lichens to grow on tiles on a roof; and also the title of the best work, with the names of author and publisher, on the subject of cultivating and propagating Lichens.

ANSWERS TO CORRESPONDENTS.

APPLES WITH THE RIND CRACKED IN PLACES: *W. Pearce.* The injury is caused by a fungus, Cladosporium dendriticum (see *Gardeners' Chronicle* for figures and description, Nov. 28, 1885, p. 691). The fungus is also known as Helminthosporium pyrorum, and Fusicladium dendriticum. It attacks the foliage as well as the fruit. The best remedy is the Bordeaux Mixture applied several times during the summer.

BOOKS: *Percy W. Smith.* "The Book of Orchids," by W. H. White, is vol. viii., of *The Handbooks of Practical Gardening*, edited by Mr. Harry Roberts, and published by John Lane, The Bodley Head, London, and New York.—*W. B. Hardy Flowers*, by W. Robinson, published by Macmillan & Co., London. A more ambitious work is *A Practical Guide to Garden Plants, and best kinds of Fruits and Vegetables*, by J. Weathers, published by Longmans & Co., London.

BUNCH OF GRAPES: *W. B.* You would be deservedly disqualified. The apparent bunch consists of two distinct bunches which have grown together.

CAMELLIAS AGED AND SCRAGGY: *H. Fleet.* It is quite safe to prune Camellias into the old wood, even to the stem, and the present season is the most suitable for carrying out the job. If they are standing in pots or tubs, first let the soil get moderately dry, and afford only as much water as will keep the soil in a healthy state and the bark of the plants plump. During the winter and early spring keep the plants in a greenhouse, and if it face any point but the south so much the better. In April, or earlier, the stem and branches will bristle with shoots, of which you must select the stronger and best placed for forming the foundation of the new crown, rubbing off the remaining ones. Repotting or replanting can be done at that season, and a reduction in the size of the balls may likewise be safely carried out.

CAMPANULAS: *R. S.* The plants are not amenable to forcing in heat, but they may be brought into flower somewhat in advance of out-of-door plants by greenhouse treatment, potting them early in the autumn, or growing them in pots throughout the year previously.

CHRYSANTHEMUM: *W. & Son.* There are so many seedling varieties of the early flowering section, we cannot tell you if the one you send has already been named.

CORRECTION.—The *locale* of the new colonial branch of the Horticultural College, Swanley, mentioned in a note in our issue of October 18, was inadvertently given as at Ridgefield, Wimbledon, instead of at Swanley.

CORYDALIS: *A. R. G.* C. tomentella is from E. Sechuen, China. It is clothed with white woolly pubescence, and bears golden-yellow flowers. C. racemosa grows in shady places in Japan. The flowers are pale purple, darker at the tips. Both are dwarf herbs, 12 to 18 in. high.

CUCUMBERS NOT SWELLING PROPERLY, &c. *J. Cooke.* The cause is probably the presence of eelworms on the roots, and if you will send us a sample of the roots we may be enabled to diagnose the case.

EXHIBITING SINGLE-FLOWERED CHRYSANTHEMUMS: *J. Cooke.* In small sprays or bunches with their own foliage, unless otherwise directed by the schedule of the society.

FRUIT EXHIBIT: *G. S.* Oranges of home-growth in preference to Medlars, certainly.

GALVANIZED IRON WIRE: *J. L., Leatherhead.* The best sort of paint for out of doors ironwork is Carson's Anticorrosion, which can be purchased of several colours. More than one coat should be used.

GLADIOLUS GANDAVENSIS HYBRIDS: *T. W.* We know of no French specialist of this section of Gladiolus, except M. Lemoine of Nancy. Why not advertise in this Journal?

GRAPES: *N. Marshall.* Spot, shanking, and premature dropping of the berries, apparently from very damp air in the vinery. For the first there exists no cure, and we would advise you to make an immediate clearance of the bunches, and burn them. For remedial measures con this column in recent issues of the *Gardeners' Chronicle.*

HYACINTHS AND OTHER BULBS EATEN AFTER PLANTING: *J. L., Leatherhead.* The Vole or short-tailed field mouse, Arvicola agrestis, dig holes 20 inches deep, and bigger at the bottom than at the top, and 10 to 15 yards apart. This method is much superior to trapping, poisoned grain, cats, &c.

NAMES OF FRUITS, ETC.: *We are desirous to oblige our correspondents as far as we can, but the task is becoming too costly and too time-consuming for us to continue it without some restrictions. Correspondents should observe the rule that* **not more than six varieties** *be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. The fruits should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.*—*Constant Reader.* 1, Waltham Abbey Seedling; 2, Small's Admirable; 3, Yorkshire Greening; 4, Dumelow's Seedling; 5, Golden Pearmain; 6, Reinette Van Mons.—*Thames Ditton.* 1, Duchesse d'Orleans; 2, Henkel d'Hiver; 3, rotten; 4, Fondante Van Mons; 5, Soldat Laboureur; Apple, Golden Ducat.—*J. C. W.* Winter Queening.—*W. T. P.* 1, Winter Permain; 2, Baumann's Red Winter Reinette; 3, Worcester Pearmain; 4, Tower of Glamis; 5, Hunthouse; 6, Beauty of Kent.—*C. A. R.* 4, Warner's King; 5, The Forge; you should not pack Peaches and ripe Pears in a cardboard box—both fruits were smashed.—*B.* B, Chaumontelle; D, Easter Beurré; I, Figue de Naples; K, Hanwell Souring; 3, Pitmaston Nonpareil; 5, Golden Spire. You exceeded the number allowed, and the fruits were badly labelled.—*C. Best.* 1, Beurré Clairgeau; 2, Duchesse d'Angoulême; 3, Tower of Glamis; 4, Lord Derby; 5, Wellington; 6, Waltham Abbey.—*A. L. S.* 1, Bismarck; 2, Wellington; 3, Cellini; 4, Beauty of Kent; 5, Triomphe de Vienne; 6, Conseiller de la Cour.—*E. H.* 1, Warner's King; 2, Deformed fruit, not recognised.—*A. W. Taylor.* 1, General Todleben; 2, Duchesse d'Angoulême; 3, Hacon's Incomparable; 4 and 5, Beurré Diel; 6, not recognised.—*Suffield.* 3 and 4, Lord Suffield; 9 and 10, Stirling Castle.—*G. Monroe.* Bramley's Seedling, highly coloured.—*W. J. S.* 1, Scarlet Golden Pippin; 2, Gilliflower (not Cornish); 3, Warner's King; 4, Tower of Glamis; 5, Lady Henniker; 6, Minchull Pippin.—*Ferring.* 1, King Edward; 2, Conseiller de la Cour.—*M. J. Wells.* 1, Potts' Seedling; 2, Ashmead's Kernel Improved; 3, Ecklinville; 4, not recognised; 5, Hawthornden; 6, Maynard's Bearer.—*J. B., Leicestershire.* 1 and 2, Beurré Diel; 3, Vicar of Winkfield; 4, Hanwell Souring; 5, Clark's Pippin; 6, no distinction, with us they produce the two shapes.—*A Reader.* 1, Lady Derby; 2, Okera; 3, Jolly Beggar; 4, Wesleyan; 5, Blenheim Orange; 6, Ashmead's Kernel Improved.—*Leaver, Norwood.* 1, Catillac; 2, Gansel's Bergamot; 3, Doyenné d'Alençon; 4, Beurré d'Anjou; 5, Beurré Rance; 6, Iris Gregoire.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Fahey.* 1, Leycesteria formosa; 2, Plumbago Larpentæ. *C. F.* Common on Beech trunks, Bulgaria inquinans. Truffles are found in the ground. *M. C. C.*—*A. E. Austin.* 1, Aster diffusus horizontalis, probably, but we cannot be sure from so uncharacteristic a scrap; 2, A. Novæ Angliæ pulchellus; 3, A. Novæ Angliæ (type); 4, Matricaria inodora plena; 5, Lysimachia clethroides; 6, Heliopsis scabra.—*G. S.* 1, Salvia coccinea; 3, S. Gesneræflora. The others had shed every bud and blossom.—*F. M. D.* 1, Lonicera japonica aurea; 2, a Veronica which we cannot name; 3, Lonicera Ledebourii; 4, Picea sitchensis.—*W. B. Alpine Plants*, by W. A. Clark. Published by Upcott Gill, 170, Strand, W.C. 1, Retinospora plumosa, golden form. It is a stage of growth of Cupressus pisifera; 2, Picea pungens glauca; 3, Juniperus sinensis; 4, Abies cephalonica, probably; 5, Lilium tigrinum; 6, Echinops Ritro.—*J. L. I., Maidenhead.* 1, Lælia Perrini; 2, Cattleya Dowiana aurea; 3, Dracæna Duffii; 4, D. marginata gracilis; 5, Dracæna; 6, probably a young plant of that known in gardens as Dracæna (Cordyline) australis; 7, Elæodendron orientale, Aralia Chabrieri of gardens.—*O. H.* 1, Codiæum or Croton trilobum 2, C. maculatum; 3, C. Johannis; 4, C. angustifolium; 5, C. Queen Victoria; 6, Tiarella cordifolia.—*Land.* 1, Carlina acaulis; 2, Callistemon rigidus; 3, Acacia longifolia; 4, A. penninervis; 5, Eriocephalus africanus. *A.B.R.*—*W. N. W.* 1, Pelargonium crispum; 2, Selaginella cæsia; 3, S. denticulata; 4, Carex japonica variegata; 5, Coleus, garden variety.—*J. A.* 1, Aucuba japonica medio-aurea; 2, Todea hymenophylloides; 3, Pyrus Aria (White Beam); 4, Nepeta or Glechoma hederacea variegata (variegated ground Ivy).—*Cornubian.* Pellionia pulchra, of the Order Urticaceæ.—*J. M. K.* 1, Matricaria inodora; 2, Campanula rapunculoides; 3, Lapsana communis.—*J. H. C.* Berberis vulgaris.—*Liverpool.* Catasetum atratum.—*Adre.* Cattleya guttata, not C. granulosa.—*J. C. B.* Sequoia sempervirens, Redwood; Abies concolor.—*A. G. G.* The Shrub is Skimmia japonica, but we do not venture to name the Veronica species in the absence of flowers.

NUTS WEEVIL-EATEN: *Mrs. Hudson.* The best preventative of attacks of the Nut-weevil, Balæninus nucum, is deep cultivation, and manuring every autumn with shoddy, fish, and fur waste. The soil under the bushes where the caterpillar passes the chrysalis stage should be shovelled off and buried deeply in the alleys between the trees, or simply dug a foot deep, which would bury the feeble grubs too deeply for them to push through in the spring.

PROLIFEROUS CHRYSANTHEMUM: *F. W. J.* The same condition as that witnessed in the Hen-and-Chicken Daisy, or any other Composite. It is not very unusual.

SALVIA COCCINEA: *M. B.* This has leaves downy on the under surface; corolla pubescent, &c. S. splendens has the leaves glabrous; corolla glabrous, &c.

VEGETABLE-MARROW: *W. D.* Cucurbita Pepo ovifera.

YEW-TREE SICKLY: *E. N.* The layer of soil 2 feet in thickness placed over the roots prevents air reaching the roots, consequently the tree is suffering from a sort of suffocation, and may be from lack of moisture. We would advise you to remove the additional soil for a radius of 20 feet, and thus make the tree the centre of a depression, with bevelled turf on sides, and a level plateau around the tree. Prick up the soil, and afford some mild manure or leaf-mould, and drench the whole with water. The Yew does not resent pruning, either of the young growth or aged limbs.

COMMUNICATIONS RECEIVED.—W. Smith—W. R.—S. C.—W. B.—W. W. P.—J. W. R.—C. J., photos—W. B. H., Cork—M. Grignan, Paris—M. D. Laet, Antwerp—W. M. W.—W. W.—Dr. Schlich—R. Newstead, with thanks.—W. G. G.—J. R. W.—W. Kemp—G. S. Moffatt.—J. A. S.—G. B—J. C.—A. R.—J. F.—W. U.—J. W. M—H. O.—G. I—H. D. T.—N. E. B.—C. E.—T. W. B.—F. J. F.—J. Hill.—Manual—Dobbie & Co.—J. J. W.—H. M. E.—Onlooker—Gloster Correspondent—W. H. Y.—W. H. P. J. G. W.—W. H.—H. J. C. G. W.—C. C.—E. C.—G. C.—R. R.—J. O'B—R. P.—W. S.—H. W. W.—J. J.—C. H.—H. M. H.—W. C. H. G., Canterbury (next week)—Zigzag.

(*For Markets and Weather, see p. x.*)

THE
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WORMS OF THE GARDEN AND LAWN.

THE RED-WORM (*Lumbricus rubellus*).

THIS is the Redhead of some gardeners and anglers. Popular names, however, shift from one thing to another in an amusing fashion, often to the great inconvenience and chagrin of those who believe in system and order. I have no doubt, from my frequent conversations with farmers and knights of the rod, that all the worms belonging to the first group (or genus Lumbricus) are confused under one general name, both in popular language and in the trade. The red-worm has been known by a great variety of local, as well as scientific names, and it will be impossible in every case to say whether the purple, the ruddy, or the true red-worm is intended. It is possible that after awhile we shall get as clear a distinction made between them as we now make between a Primrose, a Cowslip, and an Oxlip.

The first description of this worm which was ever published appeared just half-a-century ago, and was from the pen of a German naturalist by the name of Hoffmeister. No accurate notice of the worm, so far as I can ascertain, has ever appeared in English, except that which I published myself some time ago. Such brief accounts as do come under one's observation are so confused and inexact as to be of no real value. I have not been content with reading everything which was accessible in the various languages of Europe, but have collected and studied large numbers of specimens from all parts of the country, thoroughly sifting the subject, and checking the statements of others by my own researches.

While a detailed history would be tedious, it seems desirable here to give a brief, popular outline. It is quite possible, nay, even probable, that the worm was known to the earlier naturalists, who record a number of worms under different names. These descriptions are, however, so brief, faulty, or vague, that, in the absence of illustrations and accurate data, they cannot be of service for scientific purposes. We must, therefore, conclude that the history of the red-worm commences with Hoffmeister in 1842. Nine years later, when Grube published his work on the Annelids, he included this species among the list of European earthworms, and placed it next to the common earthworm, on account of the similarity which exists in certain respects between the two species. These points of resemblance consist chiefly in the shape of the lip, in which respect it also nearly resembles the two which follow; and in the division of certain segments into rings or annuli, in which it differs from the next, which in some other points it more strikingly resembles.

Passing over a dozen years, we come to 1863, when a French description appears, to be followed by another German account some ten years later. In this instance, Eisen extended and revised the work of his predecessors; but it remained for another naturalist, bearing the name of Kowalewsky, to study the internal anatomy of the worm, as well as to supply us with an account of its life-history and embryology. He has been followed by several others, whose names I withhold.

In 1880, Dr. Oerley, a Hungarian worm-patron, found the species in his native land, and described it under the old name of Enterion. Though a catalogue of British worms appeared in 1865, we find no description of the red-worm under its proper name, but we may suppose that it is included, among others, under the name of Lesser-worm. It should be observed that Ray, who lived 200 years ago, speaks about the lesser ruddy-worm; and Pennant writes of the lesser earthworm, using, however, Latin instead of English expressions; but two or three different species are, no doubt, included under these names.

Without troubling to give the descriptions of the red-worm, which have appeared at different times, and which are very perplexing even to an expert, let me sum up the principal characters as we find them on examination of a typical mature specimen.

The red-worm is about 3 inches in length, of a dark brown colour, which approaches a purple tint, and is beautifully iridescent on the front part of the body when viewed from above. The under surface, as well as the hinder extremity, is lighter, or flesh-coloured. Owing to the dark colour of the body in front of the girdle, anglers often call it the black-head, while such names as peacock-red, red-head, trout-worm, marsh-worm, and segg-worm, include the two following species as well as the present.

Looking at the head we find that the lip or foremost portion cuts the first segment quite in two, the tenon being fitted in between the equal parts of the segment. This is one of the distinguishing marks of the genus, and will be found to apply to all true Lumbrics. The male opening on the under-surface of the fifteenth segment can only be discerned with difficulty, there being no pads or papillæ, as in many other worms, to make the pores stand out prominently.

Towards the middle of the body, as we proceed backwards with our examination, but still a good deal nearer the head than the tail, is the girdle or clitellum, which extends from the twenty-seventh to the thirty-second segments. It is invariably lighter in colour than the front portion of the body, by which it can easily be distinguished from the ruddy-worm to be next described. The girdle varies from orange to yellow, brown or red. When fully developed the signs of puberty are discovered on segments twenty-eight to thirty-one. In this respect again the worm agrees with the true Lumbrics, which have a ridge or series of pores on four of the segments under the girdle, connected with the organs of reproduction. On the back there are also a row of openings known as dorsal pores, the first of which usually occurs in the red-worm behind the seventh segment. They are most easily observed on the girdle, especially after the specimen has been preserved for a time in strong methylated spirits.

On account of the close resemblance which exists at first sight between this worm and the two following, they have often been taken for one and the same, or regarded as mere varieties. While we admit that the red worm is liable to variation, there are certain well marked differences between these species which invariably distinguish the one from the other. These will be best understood when the descriptions of the purple and ruddy worms have been read and examined.

It will be remembered that the body of the earthworms is covered by a very delicate skin or cuticle; this can easily be dissolved in weak solutions of hydrochloric acid, which is not the case with the chitinous wing-sheaths of insects, or the shells of crabs. Now, as this acid exists in considerable quantities in the soil where the worm burrows, the creature protects its skin from being eaten away by pouring an alkaline fluid over its body, which it is able to manufacture on the premises, and excrete from a special series of glands. This surely is a most interesting discovery, for which we have to thank a naturalist named Kulagin. If the skin is stripped off after keeping the worm for a time in weak spirits, the various pores can be beautifully seen.

Two kinds of colouring matter have been extracted from the red-worm, one of which is green, and dissolves in water, while the other is red, and can be extracted by the use of ether. By the action of acid upon the green pigment, it appears to be changed into the red; but it is not quite clear whether these chemicals at present serve any useful end, or are merely relics of earlier times, when the worms were able to protect themselves by means of their secretions.

The red-worm, like the rest of the family, lays eggs. The capsules, or cocoons, resist the action of acid better than the skin of the worm does, and those of the red-worm

will not even dissolve in pepsin. They may be found at all seasons of the year by examining the spots which are frequented by the worms, but I have found them to be most abundant in winter. It is very interesting to watch the growth and development of the young worm through the transparent egg-shell.

NEW OR NOTEWORTHY PLANTS.

PASSIFLORA MACULIFOLIA, MASTERS, SP. N.*

(SEE SUPPLEMENTARY ILLUSTRATION.)

WE are indebted to Messrs. Charlesworth, of Bradford, Yorks, for specimens of this Passion-flower. Its variegated foliage renders it attractive enough to be a companion for Cissus two falcate, leafy stipules at the base of the stalk. The leaf-blades are 3-nerved, roundish, cordate, dividing into three shallow lobes at the truncated apex, dark green above, variegated with irregular yellow blotches, purplish on the under surface, with ocellate glands. The cream-coloured flowers are not so conspicuous as in some species; they are borne in pairs on slender axillary stalks, which bear three remote, minute bracts. The flowers are about 2 centimètres across, with a broadly cup-shaped calyx, umbilicate at the base, dividing into five oblong, acuminate, recurved lobes. Petals shorter than the sepals. Faucial corona, of a single row of hatchet-shaped, violet-spotted processes, equalling the petals in length; membranous corona plicated, with many infolded processes. Interior of flower-tube smooth; basal corona annular; gynophore cream-coloured; anthers purple; ovary globose, velvetty; styles purple. It was introduced from Venezuela with Cattleya Mossiæ.

FIG. 113.—CHRYSANTHEMUM NELLIE POCKETT: FLOWER WHITE. (SEE P. 342).
(Photographed by J. Gregory, who describes the bloom as having measured 10 inches across and 11½ inches deep.)

Many interesting details relating to the internal structure of the worm, and its development from the egg to the adult stage, could be supplied. They are, however, of too advanced and difficult a nature to admit of popular treatment at present, and as they are not necessary to the accurate identification of the worm I omit them, and pass on to notice its distribution. *Hilderic Friend, High Wycombe.*

(To be continued.)

discolor. The puberulous branches are slender and wiry; the leaves are shortly stalked, with

* *Passiflora maculifolia*, Mast sp. n. (*Sect. Decaloba*).—Ramis gracilibus; petiolis ad 25 mill. longis eglandulosis; stipulis lineari falcatis, foliaceis; foleis 10—11 cent., membranaceis supra viridibus flavido variegatis infra rubro-violaceis; 3-nerviis, subrotundatis cordatis apice trilobis, lobis obtusis, lobo medio majore; pedunculis geminis axillaribus 1-floris; calyce ad 25 mill. diam. cupuliformi basi intruso, apice in lobos oblongos patulos dividente; petalis parvis albidis; corona fauciali e processubus pluribus 1-seriatis dolabriformibus violaceo-punctatis; corona media membranacea arcte plicata li flexa; gynophoro glabro; filamentis purpureis; antheris violaceis; ovario subglobeso velutino, stylis purpureis.

ORCHID NOTES AND GLEANINGS.

LYCASTE SKINNERI ATRO-SANGUINEA.

A FLOWER of this fine Lycaste, remarkable both for its beauty as a variety and as an example of the effect of good culture, comes from the collection of Captain G. L. Holford, Westonbirt, Tetbury, Gloucestershire (Orchid-grower, Mr. H. Alexander). The flower is 7 inches across. The sepals and petals are white, the former lightly, and the latter heavily tinted with purplish-rose. The lip is entirely of a glowing reddish-crimson, the callus being yellow, the colour appearing the more intense in contrast with the ivory-white column. Mr. Alexander finds the Lycastes thrive most vigorously in a compost in which Oak-leaves form the principal ingredient.

CŒLOGYNE (PLEIONE) PRÆCOX ALBENS.

A nearly white form of the rosy-lilac Pleione præcox is sent by Mr. J. W. Moore, Cragg Royd Nurseries, Rawdon, near Leeds, who remarks that, out of the thousands of these "Indian Crocuses" which he has imported, this is the first of its kind. The flower is white, but close inspection reveals a slight trace of colour similar to that seen on some pearls; there are also two slight purple lines and a few spots along the crest, which has a yellow blotch in front of it. At one time, the members of this section of Cœlogyne used to be considered difficult to grow, but at present many cultivators succeed satisfactorily with them planted in pans suspended near the glass of the roof, or on shelves in a similar position. The great requisite is a liberal supply of water until the bulbs are finished, and leaves begin to turn yellow, and a small supply after.

VANDA SANDERIANA, VAR. FROEBELIÆ.

A very large and handsome flower of this very fine form of this showy orchid, is sent by M. Otto Froebel, of Zurich, who says of it: "This is the finest I have ever seen. The plant is very strong and healthy, with sixteen home-grown leaves, and a grand spike of twelve flowers, all wonderfully rich in colour, and of ideal shape, as you will see by the flower sent." The flower and all of its segments are nearly circular in outline, the whole being four and-a-half inches across diagonally. The upper sepal and petals are of a light rose colour, with reddish-purple spots at the base; the lower sepals yellowish, margined with rose, and beautifully marked with claret colour on the veining.

CYPRIPEDIUM × CHAS. RICHMAN.

A variety of the C. × Leysenianum type, now in flower with Mr. H. A. Tracy, at Twickenham; and with a perfectly normal flower, so far as its structure is concerned, exhibits a strange peculiarity in the disposition of its markings. The

whole flower is tinted with purplish-rose, as in the ordinary form; but one of the petals is unspotted, while the other bears a profusion of small dark purple spots, as usually displayed in this showy hybrid. The odd colouring gives a very peculiar appearance to the flower. The next thing will be to ascertain whether the variation is fixed or not.

"LINDENIA" (Nos. 5 and 6, Vol. 17).

The following illustrations and descriptions of the plants illustrated, are given in the last issue of this fine work on Orchids.

ODONTOGLOSSUM CRISPUM, REINE EMMA.—Flower of fine shape, white, with massive yellow-tinted claret blotches on each segment.

ODONTOGLOSSUM CRISPUM, PRESIDENT ROOSEVELT.—A fine flower with fringed petals; white, with reddish-brown blotches.

ODONTOGLOSSUM CRISPUM, PRINCE ALBERT.—A pretty form with all the segments slightly fimbriated; white, with large reddish-brown blotches having a tracery of purple over the veining.

ODONTOGLOSSUM × ADRIANÆ TIGRINUM.—Cream-white, heavily blotched with light chocolate.

ODONTOGLOSSUM × LOOCHRISTIENSE, ETOILE DE MOORTEBEEKE.—Flowers very showy bright yellow, marked with chestnut-red.

TRICHOPILIA SUAVIS CANDIDA.—Flowers white, with orange blotches on the centre of the labellum; differing from T. suavis alba, figured in *Lindenia*, vol. i. t. 2, which has lemon-yellow markings on the lip.

LÆLIA GRANDIS TENEBROSA SUPERBIENS.—A handsome flower, with yellowish-red sepals and petals, and dark rose labellum veined with purple.

LÆLIA GRANDIS TENEBROSA RAYON D'OR.—Flowers large, sepals and petals bright yellow, with slight reddish markings; lip French-white, veined with purple, and tinged with rose.

It is generally conceded that Lælia tenebrosa is as distinct from L. grandis as many other plants accorded specific rank, and in such case the use of both names is unnecessary.

CHRYSANTHEMUMS AT FLORHAM FARMS, FLORHAM PARK, NEW JERSEY, U.S.A.

THE house illustrated (fig. 114) is 200 feet long, 33 feet wide, and 20 feet high at the ridge. It contains four benches, the two centre ones being 6 feet and the side ones 5 feet wide. They are about 2 feet from the ground, and are 5 inches in depth. This is the bench commonly in use in America for growing Chrysanthemums, Roses, Carnations, &c., and allows a depth of 4 inches of soil. The young plants were put out on the

FIG. 114.—CHRYSANTHEMUM-HOUSE, FLORHAM FARMS, FLORHAM PARK, NEW JERSEY, U.S.A.

benches about May 12, and each plant was allowed 10 ins. of space in each direction. The buds were taken from Aug. 15 onwards, according to varieties, and the cutting of the flowers commenced on October 10. From this house about 5,700 blooms were cut, each one of exhibition size and finish. Forty 1st prizes, including a Gold Medal and Silver Cup, were won by flowers cut from those shown in the picture. The flowers on the left side of the picture are Mrs. Henry Robinson, many of which had been cut at the time the photograph was taken. These blooms all averaged some 22 inches in circumference, and the same distance over the top of the flower. Further along on the same bench was Timothy Eaton; this variety was from 6 to 10 feet high, and produced enormous blooms 27 inches in circumference and 25 inches over. On the right of the picture, Madame Carnot and G. J. Warren appear, but neither were nearly developed at the time that the photograph was taken. Many flowers of these varieties were shown 25 inches in circumference and 26 inches over. While the measurements stated will afford the reader an idea of the size of the individual flowers, the photograph does not do justice to the magnificent sight the house presented before the flowers began to be cut away.

SOUTH AFRICA.

TWO DAYS AROUND CALEDON, CAPE COLONY, IN A CAPE CART.

MY friend, an enthusiastic amateur botanist, and I hired a Cape cart for two days, and went a long way into the country. The first day was devoted to explorations along the foot of the Swartzberg Mountains; the second day was along the Hartebeest River, and to the right of it, as far as Hartebeest Berg, I made a list of the genera we met with, and this I give below, but by no means all the genera to be found about Caledon.

I could not help reflecting, as the cart drove along, what a grand opportunity Caledon, as well as other places I have visited in the western parts of Cape Colony, offered for the leisured botanist. My friend returned loaded with species, which will occupy him many long nights working out with his *Flora Capensis* in front of him. I also felt what a glorious opportunity is afforded to those elderly gentlemen who frequent the London clubs, and sit in their well-padded chairs waiting to die, while their heirs are fuming and fretting for the old boy to cast off this mortal coil, that they may enjoy his possessions. With a botanical hobby, bird hobby, or insect hobby, roaming about as I am doing, he would add years to his life; and as his heirs are increasing in years, they may also be increasing in wisdom, so that when their time comes, they may have learned that the sole object in possessing the resources of their forebears is not to squander it, but to use it as a trust.

The other day I stood watching the dung-beetle rolling up his material into round balls, and when ready pushing it uphill with his hind-legs, every now and again missing his hold, and ball and beetle roll down together to the starting-point, to take up his task again; then another

beetle would cast up, and a fight would ensue for the possession, and ball and beetles again roll downhill. One, while I waited, after some combats and much exertion, succeeded in landing his treasure where he intended to locate it, and immediately made a dive into the hole, and commenced moving the soil underneath till the ball disappeared.

The birds are not numerous, as they have many enemies on the look out for them, but most of them are of great beauty.

There is in Cape Colony much interesting study. I am devoting myself to the study of the flora, and the possibilities of the land for agricultural pursuits. In a few days I start by steamer for Durban, will work through Natal into the Transvaal, then cross country by mail cart, and work down from Mafeking to Kimberley. At De Aar I propose to cross to Colesberg, spend a few days with a farmer, then enter the Orange River Colony; returning from there, I intend to work through the eastern part of Cape Colony into the western part, and back to Cape Town. I expect to cover the ground in about six months; and after a short stay in Cape Town, make for London.

List of genera to be found within the Caledon district, as far as we could judge, is given below. No doubt there are many more to be found, as we did not touch the mountains, where many fine things are to be found of great interest. Intending botanists travelling in South Africa should study carefully in advance the *Flora Capensis*. The library of Cape Town is exceptionally rich; there is a complete set of the *Botanical Magazine* and of the *Gardeners' Chronicle*, and I suppose many other books of reference, botanical, historical, &c. The library is free, and the attendants most obliging. I have not made much use of it, as I have been intensely interested in the political situation. It would tend greatly to the settlement of the country if the Imperial Government would pay the farmers in Cape Colony the sums which have been settled as due to them for mules, horses, and cattle taken from them while martial law existed. I spent three days on a farm at Tulbagh while working in this valley, and was most hospitably treated, the children calling me uncle.

For easy reference I have put the genera alphabetically, and trust my notice will stimulate botanists to visit Cape Colony, &c. Two or three of the genera named were not in flower, but there are many that are not recorded in this list.

Albuca
Anthericum
Antholyza
Adenandra
Aphelexis
Acidanthera
Aristea
Asparagus
Aulax
Babiana
Boartia
Brunsvigia multiflora
Bulbine
Bulbinella
Buphane ciliaris
Bæomitra columellaris
Berckheya
Belmontia
Cyanella
Cyrtanthus
Crassula
Colutea
Curculigo
Corymbium
Dimorphotheca
Diplopappus
Dilatris
Dipcadi
Drimia
Drosera
Ericas, a large number
Eriospermum
Eucomis
Ferns
Gladioli
Geissorhiza
Galaxis
Gethyllis
Gebra
Gazania
Gnaphalium
Hypoxis
Homeria
Hesperandra
Hæmanthus
Helichrysum
Halleria
Helip'erum
Hermannia
Iris
Indigofera
Kniphofia
Kaowltonia
Lachenalia
Lapeyrousia
Lobelia
Leucospermum
Lobostemon
Liparia
Leucadendron
Lanaria
Morea
Massonia
Melanthium
Micranthus
Manulea
Mimetes
Melalasia
Oxalis
Ornithogalum
Osteospermum
Osmites
Pelargonium
Polygala
Podalyria
Phœnocoma
Pentas
Romulea
Richardia
Scabiosa
Sparaxis
Sebæa
Senecio
Sutherlandia frutescens
Sorriria (?)
Tritonia
Tulbaghia
Tripteris
Urginea
Wachendorfia
Watsonia
Wurmbea

ORCHIDACEÆ
Schizodium
Disa
Satyrium
Bertholina pectinata
Pterygodiums
Desperis

Peter Barr, V.M.H., Cape Town.

NURSERY NOTES.

D. S. THOMSON AND SONS, WIMBLEDON.

IN few parts of London has the builder been more actively engaged of late years than in some of the south-western suburbs, and the Wimbledon district has yielded many "eligible sites" to his insatiable demands. Part of the area of the old Wimbledon nursery of Messrs. Thomson & Sons is already covered with "desirable flats," and very soon another portion of 2 acres will be taken from the nursery to be treated similarly.

The older residents of this part of Surrey remember that the nursery consisted originally of 12 acres of land, which was previously the fruit and kitchen gardens belonging to the Wimbledon Park House property, where the Duke of Somerset resided early in the last century. An old garden wall that was built long before those days, still exists as an illustration of the thoroughness that characterised the age. It is 4 feet in thickness at the base, and the foundations extend

MR. D. S. THOMSON, WIMBLEDON.

6 feet below the ground-level. No wonder that it is still in good condition! A further relic is the gardener's cottage, and now the residence of a member of the firm.

The Wimbledon Park House estate has long since ceased to exist as private property, and many of the younger generation of residents may not know the associations that are connected with the large area of villa residences now known as the "Wimbledon Park" district. We must not dwell longer, however, upon this interesting subject, so closely connected with the history of Wimbledon.

Messrs. Thomson's nurseries are remarkable for the excellent condition of the plants cultivated there.

The interest of the famous "fruit gardens," as they were then known, was purchased by Mr. Thomson, more than half a century ago, from the family of James Paxton (brother of Sir Joseph Paxton), who had them previously. Mr. Thomson soon commenced to establish the present nurseries, and made landscape gardening a special feature of his business. A quarter of a century ago, it was seen that the leasehold property in Wimbledon would have to go sooner or later, and Mr. Thomson secured the freehold of nearly 50 acres of good land, situate between Wimbledon and Raynes Park, bounded by the main line of the London & South Western Railway, from which we have often admired the admirable condition in which the nurseries are maintained. The sting was thus taken from the falling-in of portions of the lease, and the builder's encroachments, for the Raynes Park Nursery affords ample ground for out-of-door stock, and sufficient of the area of the home nursery to accommodate the glasshouses, is secured to the firm for the best part of another century.

The head of the firm, Mr. David Stewart Thomson, whose portrait we reproduce on this page, was born in the vicinity of Stirling, N.B., in the year 1816, but although in his eighty-seventh year, he is perfectly hale and hearty, as the photograph, taken two years ago, shows, and may often be seen in the district inspecting the work in connection with the nursery. Mr. Thomson's two sons, William Stewart Thomson and Henry David Thomson, are also members of the firm, and take active parts in the business; the former conducts the management of the landscape-gardening department, now that his father requires more rest from his very active life.

THE HOME NURSERY

is approached through a pretty conservatory, which is furnished with Palms and other foliage plants, and brightened by groups of flowering plants in season. There are glass-houses to the number of thirty, and the contents of many of these show that the business includes a brisk local trade in decorative plants, cut flowers, and florist's specialties. There were noticed batches of Pelargoniums Raspail Improved and Cynthia, a semi-double white variety; Begonia Gloire de Lorraine, and the Turnford Hall variety of this excellent Begonia; Cypripedium insigne, large numbers of Aspidistras, which are imported in clumps direct from Japan; Cattleya Trianæi and C. labiata, for supplying flowers for cutting; great pyramidal plants of Indian Rhododendrons (Azaleas) for the same purpose; several houses of popular varieties of Fern, also Lilium speciosum, 7000 Chrysanthemum plants, &c. Most of the foregoing plants are for the local or shop trade; but there are other species that are for distribution over a wider area. Such are the Bouvardias, of which hundreds of good plants were commencing to bloom in 5-inch pots; 700 climbing Roses in pots, and 500 pot Vines, which are grown on the two-years' system. Reverting to the Chrysanthemums, we saw large batches of plants of such varieties as those of the Madame Desgranges type, and Boule de Neige, that had been lifted from the open ground and planted upon shelves in span-roofed houses, a similar system to that practised commonly in America, even in the case of exhibition blooms. The plants were yielding nice blooms on September 28.

THE NEW GYPSOPHILA.

The out-of-doors stock at the home nursery is varied; but amongst the miscellaneous plants there, we were most interested in some fine Mulberry-trees as standards, with clear stems 5 feet to 6 feet high, and luxuriant heads. It is seldom such trees of the Mulberry are seen in nurseries. A batch of plants of the double-flowered Gypsophila paniculata was not without interest, although we had seen the variety exhibited at the Drill Hall on two occasions previously, where on July 30, 1901, the Floral Committee recommended it an Award of Merit. The flowers are not double in the usual manner, but present really an instance of prolification, each apparent bloom being really a head of blooms, numbering six, if we remember rightly. The prolification was of the nature of a sport which occurred in these nurseries eight years ago. It was some time before a successful method of propagation was discovered, but now the stock is easily increased by cuttings, batches of which we saw in several stages of development. The young plants are not stopped by pinching, but the shoots are secured to neat

stakes, and they produce large panicles of white bloom of great value for almost any purpose that cut flowers are required for, and grown in a pot they are admirable for the decoration of the conservatory. Plants will be distributed in the spring.

The Branch Nursery,

already mentioned, consists of nearly fifty acres of good loam over clay. It is abundantly stocked with most kinds of trees and shrubs, and other species of hardy plants. In the quarters containing a collection of hardy perennial flowering plants, bright patches of colour were made by the brilliant herbaceous Phlox Lothair, and the Bessarabicus and other varieties of the Michaelmas Daisy. A fine lot of German Irises were being divided and replanted. Lobelia cardinalis in bloom in a large bed was beautiful; a great quantity of Violet plants in variety were noticed, and Violas included, batches then being rooted and others in course of planting-out ready for sale. An unusually fine stock of the lovely Scabiosa caucasica was noticed. The dwarf growing alpine plants are cultivated in beds protected from winds by Thuya hedges.

Large quantities of Strawberry plants were layered in small pots plunged near to the plants, British Queen and Royal Sovereign taking leading places amongst the varieties. Close to these were large breadths of Seakale to be sold for forcing. Roses are grown largely, there being about 18,000 plants budded each year.

Of the trees and shrubs, it may be said that rarely if ever do nurserymen have a season so favourable for growth as that of 1902. The amount made by almost every variety in this nursery is most unusual, and may be attributed to the trees having had no check from dry weather; and with frequent rains and a damp atmosphere they made appreciable growth every week. In some seasons, during periods in June and July, trees and shrubs are next to being stationary owing to drought, they are then apt to become a little hard, and the growth afterwards is less free and shorter-jointed. There is an excellent stock of Irish Ivies, and of most varieties of this splendid town evergreen, for which as tree Ivies or as climbing plants, there is always a good demand in London. Limes succeed perfectly; about 3,500 are layered every year, and the standard are grown in single rows, so that they make perfect specimens with grand heads, and the smoothest and straightest stems. Another famous London tree, the Plane, is grown very largely; also Sycamores, standard and other Thorns, Elms, Birch, Mountain Ash, and indeed most kinds of forest and ornamental trees and shrubs. Three years' old Planes had made growths 5 feet long on September 28. Yews and Box are quite a feature of the nursery.

A great breadth of pyramidal Hollies was being replanted, and this necessary work appears to be given the attention it deserves in all cases. There are plenty of Conifers, and the collection includes most plants of those species known to thrive best in Surrey and the neighbouring counties.

Fruit-trees are by no means neglected; Apples, Pears, Plums, Cherries, and Peaches, are grown in large quantities as bush trees or trained as espaliers.

But we must conclude these notes of a most interesting visit, for neither editors nor readers like long articles, and this one, we fear, is already open to such an objection.

MESSRS. HUGH LOW & CO.

Phalænopsids have always been a specialty with Messrs. Hugh Low & Co., and their house of "Moth Orchids" at Bush Hill Park equals in point of vigour the fine collection which they had at the old nurseries at Clapton for many years. It was a matter of some anxiety to ascertain whether they would be as successfully grown in the new as in the old quarters, the species of Phalænopsis being known to be endowed with peculiarities which even the most carefully constructed house does not always satisfy. Messrs. Low have been the centre of the Phalænopsis culture of Europe for many years, and many of the standard species, such as P. Stuartiana, and the hybrids, have been due to their introduction. P. Schilleriana, P. amabilis, P. Aphrodite, and P. Stuartiana, form the bulk of the collection, but good examples of most of the other and some of the hybrids are still in evidence, and arrangements are being made for further interesting introductions. An adjoining warm house has a batch of the still uncommon Cypripedium purpuratum in flower; a strong plant of a fine variety of C. × Madame Jules Hye, with large, white, rose-tinted upper sepal; C. × Tityus, C. × Nandi, C. insigne Laura Kimball, C. i. Balliæ, C. i. Sanderæ, and other yellow forms of C. insigne, and a noble plant of that exceedingly stately hybrid C. × l'Ansoni, with a fine spike of three flowers.

Odontoglossum crispum is extensively and well grown, house after house of it being remarked. Some were in flower, and among them a few spotted forms, of which already some good things have bloomed out of recent importations, and there are yet large quantities unflowered which will probably be productive in good forms. In the corridor is a fine show of O. crispum, O. Forbesii, O. varicosum, Cymbidiums, and other Orchids of the season, arranged with foliage plants; and in the adjoining ends of the houses groups of whatever may be in flower in the different sections are arranged, so that they may be examined without traversing the long ranges of houses.

The Cattleya and Lælia-houses have large numbers of all the showy kinds, C. labiata and C. Loddigesii both making good displays. With them are C. Dowiana and C. D. aurea, C. Eldorado, C. bicolor, and the new ally of it recently introduced by Messrs. Low, C. Grossii, which is extraordinarily variable in size and colour, the flowers varying from one almost an albino to those with olive-green, unspotted sepals and petals, and light rose lip; and darker forms of the same type with chocolate-spotted sepals and petals. Hybrid Cattleyas and Lælio-Cattleyas were well represented, among the showiest being the rose and purple L.-C. × Firefly, a pretty and profuse bloomer; good C. × Hardyana, C. × Mrs. J. W. Whiteley, C. × Maroni, Lælio-Cattleya × intermedio-flava, &c.

The showy Dendrobiums are extensively imported and cultivated at Bush Hill Park, and a large house has the roof thickly set with fine specimens suspended from it. Dendrobium Wardianum is there in quantity, and with fine, mature pseudo-bulbs for the coming season's flowering; D. Devonianum in large numbers, and with pseudo-bulbs 3 feet or more in length, and yet only a few years ago this beautiful Dendrobe was numbered among the "difficult" species; as was also D. formosum giganteum, but which here grows and flowers well year after year.

Cypripediums are represented in great quantities, the imported species in larger numbers than in any other nursery. There is reason in this, for already the importation of C. Lawrenceanum has produced several C.-L. Hyeanum; and the large number of C. callosum is now showing an advance towards an albino, in a form flowering for the first time, and in which the rose colour is nearly suppressed.

Vanda cœrulea is grown in quantity, and in fine condition; Brazilian Oncidiums in great profusion, and well set with flowers; O. incurvum and O. ornithorhynchum, with their rose and white flowers, and in each species good plants of the pure white form; O. cucullatum, O. splendidum, &c. Practically everywhere these Oncidiums grow to perfection under cooler treatment than was given them years ago, and when they were, in consequence of excessive heat given them, wrongly accused of being bad growers.

Odontoglossum grande, one of the showiest of autumn flowers, is well represented, and profusely flowered; and most of the showy genera, which are the things principally cultivated by the firm, are in splendid condition.

The large culture of Orchids is only one branch of the Bush Hill Park Nurseries, where equally important branches are devoted to almost all the showy flowers useful for decorative purposes, Palms and other plants grown for foliage, and hardy flowers of all kinds. Plants for market purposes, export, or home sale, of every description, of proved excellence, are extensively and well grown at Bush Hill Park, the interests of the one department not being allowed to encroach on those of any other.

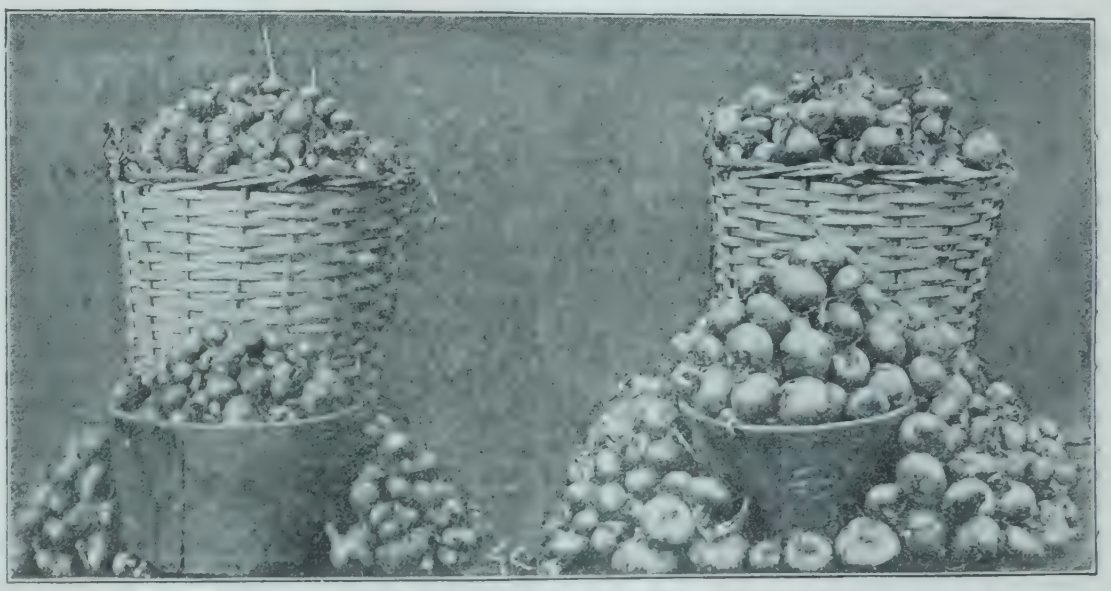

Fig. 116.—UNMANURED AND MANURED ONIONS. (see p. 341.)

STONE ORCHID COMPANY.

This company was projected between three and four years ago, for the importation and cultivation of Odontoglossum crispum chiefly, both with a view to the flowering of valuable varieties out of the importations, and to the sale

of cut flowers. Under the management of Mr. F. S. Stevens, the company's stock of well-grown Odontoglossums is located in a well constructed block of eight span-roofed houses, the arrangement of which is complete in the matter of heating, water supply, ventilation, and all the other important details. The method of shading is by stretching the light shading from ridge to ridge of the block of houses, and by that means the ventilation is not impeded. The houses also have the ordinary wooden doors for use in cold weather, and fine open canvas ones with wooden frames for use in hot weather.

With regard to the very large number of fine Odontoglossums in the houses, their good quality is uniform throughout. Some were in flower at the time of our visit, and among them a few white forms of remarkable size and breadth of petal; also two or three spotted forms fully expanded, and several which in the bud seemed to promise to be of merit. Mr. Stevens watches those about to flower for the first time with keen interest, and it must be pleasant to be custodian of such a fine lot of plants, whose vigour has been the outcome of his skill and careful treatment. The manager's dwelling, the new offices, stores, and packing-shed are all conveniently arranged.

PLANT NOTES.

HELENIUM AUTUMNALE.

THIS is one of the most useful members of the Composite family. Cut spikes, from 4 to 5 feet high, and surmounted by large golden-yellow flowers, 3 inches across, are most useful, and have a telling effect intermixed with sprays of Michaelmas Daisies of distinct shades of colour, and such-like flowers, in large vases, for the adornment of entrance-halls and rooms during the autumn. The plant should, therefore, be grown in every garden which is expected to produce flowers in quantity, for the purpose indicated. The plant is easily increased by division of the roots, and it will succeed in any ordinary garden soil inclining to be light rather than heavy in texture. *H. W. W.*

HIBISCUS HUEGELII.

To anyone who wants a showy climber, easily kept within bounds, to flower under a greenhouse roof, or against a pillar in a conservatory, I can recommend Hibiscus Huegelii, a native of Australia. One is trained from the floor of my greenhouse to the top of the roof, the stem being persistent, and branching moderately. It is now five or six years old. It flowers for nine months, from November to July—more abundantly in spring. The colour is soft blue-purple, and the size of the flowers 4 inches across. It ripens seed sparingly, and cuttings do not strike readily. *C. Wolley Dod, Edge Hall, Malpas.*

CULTURAL MEMORANDA.

MARGUERITES.

I ENQUIRED recently of Messrs. Ward Bros., of Oak House Nurseries, Enfield Road, Southgate, what is their usual mode of growing the above? This is the answer:—August-struck cuttings in boxes placed in cold frames, potted into 48's when ready; they only require once stopping. These should be ready for the May sales. This is a new departure to me, and I think well worth a note. True, at first sight, the tops being small, the plants look over-potted; but I can see the wisdom of getting free-rooting plants from boxes, which are far before those turned out of thumbs. The above growers, standing in the market, quite know what sort of plants will meet their trade. *Stephen Castle, October 27.*

TREES AND SHRUBS.

CRATÆGUS PYRACANTHA LELANDI.

SEEING the avidity with which market growers seize upon anything, whether floral or berried, that seems likely to attract the public, it is a matter for surprise that no one seems so far to have largely planted this freely-berried shrub, that the long sprays of berries borne in such remarkable profusion might be cut and sold. The now well-known Physalis Francheti looks well, and is widely grown for market purposes. We have no berry-producing shrub that is so fruitful as this Cratægus, nor one so accommodating. To have an abundance of sprays for cutting, it is best to plant 6 feet apart, and keep to bush form. Plants hard cut one year would no doubt need a couple of years in which to recoup. Some big bushes at Kingston are just now loaded with long sprays of berries. *A. D.*

The Week's Work.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Peach-houses.—The trees in the early house will not require much attention now as regards the pruning of the shoots, if the latter received proper treatment in the spring and early summer months. When trees have not been attended to in this matter, let as many shoots as have carried fruits be removed as will still leave the trellis moderately well covered, and be sure to leave as many of this year's shoots as will furnish the central parts of the trees, which may in some cases be secured to the old bare shoots. All fairly strong shoots, especially those situated at the extremities of the branches, should be shortened to a wood-bud. Very vigorous trees should be lifted, the strong roots cut back, and be replanted on the same spot. Let the ground be made firm beneath the roots; make the bottom slope from the wall, spread out the roots near the surface, and cover them with some fresh turfy loam. The shoots of such trees should be shortened to a wood-bud.

Cleansing the trees.—Peach-trees which undergo a course of forcing are sure to be infested by red-spider. To rid the trees of this pest after the pruning is finished, put one or two handfuls of sulphur, according to the size of the forcing-house, on one or two slates or tiles placed on the floor, set it alight, and let it burn till the fumes have slightly filled the house, when if necessary withdraw the sulphur. The trees may afterwards be washed with soapy water mixed with a little petroleum. If the trees are infested with mealy-bug or scale, paint them with the XL-All liquid insecticide. Wash with soap-suds mixed with paraffin the trellises, all woodwork, and the walls. If necessary, walls may be limewashed and the trellis painted. If the border on examination is found to be dryish, or the soil lacking in plant-food, afford a thorough application of diluted cow-house drainings. Having done this, remove the soil down to the roots, sprinkle some bone-meal and Thomson's Vine-manure (one of the best for Peach-trees), cover the roots with a 2-inch layer of finely-chopped fresh turfy-loam, and finish with a mulch of short stable-litter.

Nectarines.—These fruits are coming into much favour for early cropping, and with reason, for they set fruits more freely, and carry a much heavier crop than the Peach; Cardinal and Rivers' Early are two of the best varieties for early forcing. The best season for replanting trees or renewing borders is when the foliage parts freely from the shoots; it is therefore too late for such operations if the trees are to be started this month, or in December; still, if things are not satisfactory, carry out the work forthwith, and do not start the house till January or later. In renewing the border, put in plenty of drainage, leaving 2½ feet for depth of soil. The best kind of soil for the trees is a heavy, rather clayey loam, mixed with mortar-rubble; if light soil only can be got, use it fresh, and turfy, mixing with it bone-meal, and at the surface, where the roots should be, apply a good sprinkling of Vine-manure. In the case of aged or weak trees, remove the surface-soil down to the roots; afford a good dressing of bone-meal and Vine-manure, and a 2-inch layer of fresh turfy-loam chopped small; water afterwards with a rose.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Planting under the Staging in Orchid Houses.—Many improvements can be made in the generality of houses in which Orchids are grown, which add to the appearance of the houses as a whole, and is beneficial to the plants. At this season the planting of various plants under the stages may be carried out in the following manner. A pleasing effect can be made by forming a small rockery to face the paths, keeping it low, so as not to form a hindrance to the free circulation of the air; and there are many species of plants which will grow on such rockeries, taking care to select only such as will not harbour insect pests. Should a rockery not be thought desirable, the plants may be placed with good effect on the level.

Bare Walls.—Many houses are spoilt by a large area of bare wall which might be converted into a pleasing feature with very little trouble or expense. A very suitable covering for a wall is Ficus repens, planted in pockets made of terra cotta in which some common species of Orchids may be planted and secured to the wall. In the warm houses, Epidendrum radicans might be used with good effect; and in the cooler ones, Oncidium varicosum, O. Forbesii, and O. Marshallianum might be put to a similar use. Another item that affords relief to the usual monotony, and affords protection to the Orchids standing on the stage, is a lower stage carrying a row of plants grown in small pots or planted out. It will be found by those who adopt these suggestions that they are of a decided advantage to the Orchids, besides being pleasing to the eye.

Cleansing the Plants.—When the cleansing of the houses is completed, the plants themselves should be overhauled, putting new stakes to those that need them, and cleansing leaves, &c., with a sponge and soapy water, so that at the second examination in the month of January, but little will need to be done, excepting, perhaps, on plants overrun with white scale or mealy-bug which one cleansing is not enough to eradicate. If red-spider appear, as it will in winter, when syringing is not much practised, and much artificial heat is a necessity, then every infested plant must be cleansed. Against the first two pests, methylated spirit applied with a camel-hair pencil is pretty effectual; and the gardener who has to attend to the plants daily should be instructed to keep a sharp look out for them when affording water. See my Calendar for January 11 of the present year.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Planting.—The planting of deciduous trees and shrubs should be carried out forthwith, if the soil has been prepared, and is in a suitable and workable condition, the roots of the trees having then a chance of forming some new fibres before cold weather sets in. When the trees come to hand, the bundles should be unpacked without delay, damaged roots cut back to sound parts, and the trees laid-in till they can be planted. Be careful in planting to avoid having any of the roots doubled underneath, or of putting the stem deeper than it was before. If the roots are numerous, divide them into different layers, spreading them out at full length at various levels, and regulating them by hand. Each layer of roots should be covered with some of the finer particles of soil, which should be distributed over them from the stem outwards towards the circumference of the hole. The upper layer of roots should not be buried deeper than 4 inches, and the soil should be made firm throughout; and if it be light, afford water copiously, thus consolidating the soil and washing it in among the roots. Trees likely to be much affected by the wind should be made secure by fixing three

strong stakes in the ground at some distance from the stem, with pads of cloth, sacking, or hay laid in between the stems and the stakes, and fastened securely with tarred twine. A mulch of stable litter or other light material may be laid over the roots, and be kept on for a year or two. [The transplanting of extra large specimens is accomplished by the use of regular tree-lifters and horses, and plenty of manual labour. It is work that requires special experience and suitable appliances, such as short lengths of narrow boards, say, 2 feet by ½ foot and an inch thick, planks 10 to 12 feet long and 2 to 3 inches thick, bound with hoop-iron at the ends; several screw-jacks, navvy wheelbarrows, crowbars, chain or thill harness, pickaxes, &c., with which few gardens are provided; and consequently the work has to be undertaken by nurserymen in a large way of business. In moving trees and shrubs of moderate size, a mason's truck mounted on 6-inch wheels, and a sheet of malleable iron 5 feet long, 2½ feet broad, and fitted with two stout rings at either end to which a horse can be attached are useful, handy appliances, these being slipped readily under a ball of soil and roots weighing 10 to 15 cwt., and the whole mass brought out of a hole on a sloping causeway made on one side of the excavation, or on a plank road with the greatest ease. If a ball of roots and soil be brought away, it is always advisable to keep it tight and compact with short lengths of boards, sacking, or mats, bound tightly round with cart-ropes. Masses of roots and earth of large size under which a truck or a tree-lifter is pushed, need to be kept in position by pillars formed of 8-inch square pieces of hardwood fixed under the four corners of the ball, so as to allow of the entire mass of earth under a ball of a given thickness to be excavated, and upon which pillars ("packing") the ball finally rests. ED.]

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

The Storing of Roots.—Of these, Beetroots in particular, should be secured forthwith, care being taken when withdrawing them to preserve the tap-root intact. The large outside leaves should be removed entirely, and the blades of the centre leaves twisted off, the knife not being used in any way with Beets. In order to preserve the full flavour, the roots must not be allowed to get very dry, hence a somewhat damp place should be chosen for storing them, providing it is frost-proof. At Sherborne, the roots are stored in a disused stoke-hole, inserted in a bank of sandy soil, wherein they keep in perfect condition for seven months. They also keep well placed in a bank in the same manner placed against a wall facing north, the tops covered with soil, and afforded a covering of litter during severe frosts. If the garden consists of a heavy cold soil, the main crop of Carrots should next be taken up and stored, placing them in a bank built up with sand in the same way as for Beet. Carrots, however, keep better in a drier place than Beet. At the same time they should be kept cool, or they will grow considerably.

Scorzonera, Salsafy, and Parsnips, should be left in the ground till early in the spring, covering some portion of each crop with stable-litter in frosty weather.

Rhubarb.—To ensure a good supply at Christmastide, roots should be dug up forthwith, and left on the ground for a few days previous to placing them in the Mushroom-house, or other forcing place. Should frost occur whilst they are on the ground, the crowns will force all the better for it. Where a system is followed of cultivating roots specially for forcing, a good supply of those of three years' old should be available, an age at which the plants are in full vigour, and are of a more manageable size than the older clumps.

Seakale.—A batch of crowns should be placed in the Mushroom-house once a fortnight, or more often if the demand is large. Treat this batch of crowns in the same manner as was advised for the earliest batch in a recent Calendar, viz., place them upright and thickly together in a box for a few days previous to potting them, which will aid them in going to rest. Subsequent batches may be potted when they are dug up, as these will force more easily than the earlier batches. Make the strongest and straightest of the thongs into cuttings as they are trimmed off the crowns, as directed in a recent Calendar, laying them in on a sheltered border till required for planting in the spring.

Asparagus.—So far, the season has been such as to make the forcing of this vegetable comparatively easy. As, however, a change to colder conditions may take place at any time, it is well to prepare a large quantity of heating materials wherewith to line the hot-bed frames. Let the lights be covered at night with mats, and leave a small space for ventilation, especially if the heads are getting forward. The recent mild weather necessitated a considerable amount of ventilation, and this with sunheat will have dried the soil in the beds; such dry spots should be afforded tepid water.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Black Currants.—The planting of these fruit bushes may follow that of the red and white varieties. Choose a somewhat sheltered situation, and one that is not dry, and as the Black Currant has a more spreading habit than the other kinds, the distance between the bushes should not be less than 6 feet, and in very fertile soil 7 feet will not be found too much. The Black Currant grows and fruits well on the banks of brooks and ditches, which is evidence that the plants are suited with a moist soil. The fruit was exceptionally fine this year, owing to the frequent showers in this part. The varieties of Black Currants are not numerous, and Baldwin's, Carter's Champion, and Lee's Prolific are among the best.

Cherries.—Among stone fruits these are about the first to shed their leaves, and the trees may be transplanted forthwith, discarding any which show gumming of the branches. Cherries require, to grow the fruit to perfection, a good loamy soil that is well drained. Rank manure of any kind is injurious, and lime or mortar-rubble in moderate quantity should be mixed with the soil when preparing the ground, the soil being made quite firm about the roots, and no planting done in wet weather. Sweet Cherries do not succeed in every kind of soil, not even where the Morello is a success. The former at Bicton are much given to gumming on an east aspect, and I have been obliged to remove them to a cooler aspect, while the Morello on north walls does grandly. The trees that have not been much subjected to the pruning-knife, and are of about two years old from the bud, are the best for planting, a remark that applies to all kinds of stone fruits. The distance at which to plant sweet varieties, if the soil is fairly rich, is from 15 to 20 feet for wall trees, and the latter for the Morello. Standard orchard trees may be planted at 25 to 30 feet apart, and bushes and pyramids at from 9 to 12 feet. I have tested the following varieties, and found them of great excellence:—Black Tartarian, Governor Wood, Early Rivers', Black Eagle, Elton, May Duke, Bigarreau Napoleon, Emperor Francis, Frogmore Bigarreau, and the Morello. The less pruning the Cherry receives, the better the health of the tree; and for a tree which makes too much wood, or is too robust, root-pruning is the surest remedy.

The Fig.—In the warmer counties, autumn is the best time to plant the Fig; and as the leaves are now fallen, the sooner the work is undertaken the better. A very rich soil should not be chosen, or the growth of the trees will be over-exuberant, the shoots will not ripen perfectly, and are sooner crippled by frost. The best returns are obtained from trees whose rooting area is rather limited. The soil should contain a fair amount of lime-rubble, and be made very firm, and be well drained; and though shelter from the north wind is necessary in the colder counties, it is certainly not so in the west, as we find them carrying good crops of fruit on east and west walls, and sometimes away from walls and fences; but a southern aspect is preferable in most parts of the country. Brunswick and Brown Turkey are the most reliable.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Euphorbia (Poinsettia) pulcherrima.—In order to obtain bracts of the largest size, and at the same time retain the leaves, careful application of water and a stove temperature are required; any check from cold or excess of moisture at the root causing the leaves to turn yellow, and drop off. Once a week, till growth is completed, afford a slight sprinkling of artificial manure. This plant being much employed in the decoration of conservatories, and other cool and intermediate-houses, should not be placed therein before the bracts are fully grown. When this stage is reached, clear water in small amount will keep them fresh, as they have almost finished their growth, and the reduced quantity of water allows the wood to ripen at an early date.

Roses.—The weak wood of climbing Roses growing under glass should be removed, and moderately strong young wood laid in almost at full length for furnishing flowers next year. If these Roses are intended to make slow progress, scarcely any water should be applied for a few weeks, Roses being plants that are readily induced to make growth if the soil is moist and the weather mild. Any renovation of the borders or fresh planting may be carried out at this date. In the case of newly-planted Roses, water should be copiously afforded at the time. See that the drainage is good, much water and liquid-manure being needed in the season of growth. Where early forcing of Roses is practised, the Tea varieties should be employed; and some of the plants may now be put into a vinery, &c., where a bed of fermenting tree-leaves has been made up, and in which the heat does not exceed 80°, plunging or standing them on the bed, the latter by preference. Ply the syringe on them night and morning; keep the temperature cool, but do not ventilate much, or mildew may be induced by cold draughts. For succession most gardeners will turn to the Hybrid Perpetuals, and wisely so, for they give blooms of better substance than Teas, though they do not come into flower so readily.

Francoas.—Should the plants be occupying cold frames, remove them to the greenhouse or vinery, damp being their one great foe; and let very little water be afforded at the root, and none overhead.

Vincas should be dried off slightly. When well grown, Vincas are useful for furnishing greenhouses, &c., in the summer and early autumn, though of late years they have been much neglected.

Oleanders.—The water supply must be greatly reduced, and any plants which have become very scraggy may be cut back severely; they will break from the old wood and from the root-stock.

Bulbs.—Bulbs that were potted in August and September should be watched, removing them from the plunging material before the roots come over the rims of the pots. Place in cold pits or cold frames, and cover with mats on frosty nights. If left under coal-ashes too long the leaf tips get spoiled, and the roots travel beyond the pot.

GERMAN EAST AFRICA.—We have received the *Berichte über Land und Forstwirtschaft in Deutsch-Ostafrika,* a publication devoted to the work of the Imperial Government of German East Africa as regards agriculture and forestry in that country. Full reports are given in the first two parts of the cultivation of Tea, Coffee, Cocoa-nut Palms, Vines, Cinchona, Agaves and other fibre plants, Sugar-canes, Vanilla, Tobacco, and other economic plants. The breeding of zebras, elephants, antelopes, ostriches, &c., receives due attention; and special treatises on questions relating to the chemical analysis of the soil, the diseases of animals and plants, meteorology, natural history in general, and hygienic, geographical, and geological subjects, will appear in due course. The volumes are published in Heidelberg, by CARL WINTER, and afford much useful and interesting reading to those to whom the German language offers no obstacle.

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 10	Nat. Chrys. Soc. Floral Com. meet.
TUESDAY,	Nov. 11	Chrysanthemum Exhibitions at Birmingham (3 days), Brighton (2 days), Oxford, Belfast (2 days), Ipswich (2 days), Devizes.
WEDNESDAY,	Nov. 12	Chrysanthemum Exhibitions at York (3 days), Hull (2 days), Liverpool (2 days), Winchester, Banbury, Wandsworth (2 days), Buxton.
THURSDAY,	Nov 13	Scottish Hort. Soc. Chrys. and Fruit Show at Edinburgh (3 days), Chrys. Exh. at Colchester and Maidenhead (2 days).
FRIDAY,	Nov. 14	Chrysanthemum Exhibitions at Bradford (2 days). Stockport (2 days), Sheffield (2 days), Eccles, North Lonsdale.

SALES FOR THE WEEK.

MONDAY to FRIDAY, NOVEMBER 10 to 15—
Dutch Bulbs, by Protheroe & Morris, at 67 & 68, Cheapside, E.C., at 11 o'clock.

MONDAY, NOVEMBER 10—
Roses, Shrubs, and Bulbs, at Stevens' Rooms.—Sale of Nursery Stock at The Nurseries, Ottershaw, Chertsey, by order of Messrs. Fletcher, Bros, by Protheroe & Morris, at 12.

TUESDAY, NOVEMBER 11—
Bulbs, Plants, and Roses, by Pollexfen & Co., at 12.30. Nursery Stock, by Mr. Sydney Bowyer, at 1.—Sale of Nursery Stock at The Nurseries, Ottershaw, Chertsey, by order of Messrs. Fletcher, Bros., by Protheroe & Morris, at 12.

WEDNESDAY, NOVEMBER 12—
Roses, Azaleas, Daffodils, &c., at Stevens' Rooms, at 12 30.—Nursery Stock at The Nurseries, Richmond Road, Twickenham, by order of H. E. Fordham, by Protheroe & Morris, at 1.

THURSDAY, NOVEMBER 13.—
Bulbs, Plants, and Roses, by Pollexfen & Co., at 12.30.—Standard and Under-Fruit Trees, by Messrs. Jackson & Sons. at 12.—Third Annual Sale of Fruit Trees at Grove Park Nursery, Chiswick, by order of Mr. John Smith, by Protheroe & Morris, at 12.

FRIDAY, NOVEMBER 14—
Orchids, at Leeds, by Mr. John Cowan, at 12 30 — Imported and Established Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —42 5.

ACTUAL TEMPERATURES:—

LONDON.—*November* 5 (6 P.M.): **Max.** 58°; **Min.** 45°.
November 6.—Fine; temperature 47°, noon.

PROVINCES.—*November* 5 (6 P.M.): **Max.** 56°, Southern Counties; **Min.** 49°, N.E. Scotland.

Colonial Flower Shows.

WE have often, in these columns, deplored the tendency of horticulturists in New Zealand, Australia, and other colonies, to slavishly copy the old country in their flower shows. With the intensely interesting and most beautiful of floras at their command, we find, by the reports that reach us, that the Australians, Tasmanians, New Zealanders, and others, delight in producing Daffodils, Chrysanthemums, Dahlias, and other plants, beautiful enough in their way, and deserving attention as recalling old associations, but by no means to the exclusion of representatives of the native flora. Think of what splendid and interesting exhibits could be made of the plants of Swan River, Tasmania, or New Zealand. Satiated with the general monotony of our flower shows, how one yearns to see, or at least, to read of the now unutilised resources of many of our colonies. The subjoined letter from our enterprising friend, PETER BARR, has afforded us, as we doubt not it will many of our readers, the most vivid satisfaction as showing that the Cape people, at any rate, are not indifferent to the richness and variety of their wonderful flora.

"Caledon is a health resort, being some 800 feet above sea-level. It has its sanitarium and hot springs, whose curative properties have been known some 200 years to the Dutch. A railway has lately been completed to it, a little over 80 miles, from Cape Town. It is a fine agricultural centre, and great expansion is expected. The population at present is small, but it can support a fairly good number of parsons, lawyers, and doctors, to meet the wants of the many who go there to die, or through the influence of the fine, cool air, to get well and return to society. In this village there is held annually a famous show of wild flowers, which attracts great numbers from Cape Town and the surrounding districts. This year the show was not considered equal to those of former years, as the rains have continued two months longer than usual, and the number of visitors was fewer, two train-loads of passengers not being able to reach the place, owing to the washing away of the permanent way. One train had no fewer than forty Members of Parliament. The show was held on Saturday, September 20, and seemed exceedingly fine to one who had not seen a show of South African flowers. The bouquets of Ericas (Heaths) were superb, as only the most beautiful species were used. I was accompanied by an enthusiastic amateur botanist, and we went critically through the exhibits, of which the following is a list:—Ericas, two collections competed, and represented seventy species—on other occasions as many as 200 species have been staged; Proteas, five collections staged, representing thirty species; Gladiolus, four exhibits, consisting of Painted Ladies, Blue Bells, alatus, blandus, grandis, and gracilis; Watsonias, one exhibit, all the scarlet Mariana section; Orchids (terrestrial), one exhibit, including Disas, &c., some twenty species; Ixias, a few species, all of the small-flowered kinds.

"Sundry other collections, included Sparaxis, Satyriums, Lachenalias, Bulbinellas, Orchids, Harveya, Babianas, Aponogeton, Euryops, Crassulas, Dimorphothecas, Gazanias, Osteospermums, Diplopappus, Senecio, Podalyrias, Asparagus, Lobelias, Sutherlandias, Indigoferas, Kniphofias, Anemone capensis, Adenandras, Mimetes, Bulbines, Nemesias, Geissorhizas, Ornithogalums, Albuca, Homeria, and many other species and genera. Everlastings, including Helichrysums, Aphelexis, &c., some eighteen species; grasses, many species; Carexes, many species; Watsonias, several species. Then there were collections of wild flowers specially exhibited by children.

"The show was a great success as a whole, but from the constant heavy rains many fine species and genera were absent, as long journeys could not be made, either by the children or grown-up people, into the mountains or distant valleys. The garden flowers consisted of single Anemones, double and single Ranunculus, Pelargoniums, sweet-scented Violets, Freesias, Snowflakes, Camellias, Indian Azaleas, Roses, Ten-week Stocks, Virginian Stocks, Phlox Drummondi, Pansies, Nasturtiums, &c. There were centre-pieces and stands of flowers, mostly from the veldt, but it was amongst the Erica bouquets that the best taste was shown in arrangement. No one visiting Cape Town in September should miss this novel and interesting flower show, held in the school-room and old church, in the form of a cross. Any profits from the show go to the school fund. *Peter Barr, V.M.H., Cape Town.*"

"BOTANICAL MAGAZINE."—In the November number we find coloured illustrations and descriptions of the following interesting plants:—

Crinum natans, Baker, tab. 7862.—A West African species, which has the peculiarity, unique up to the present, of having its leaves submerged. In spite of their submersion, the leaves are 4 to 5 feet long, rather broadly strap-shaped. The white flowers are in tufts, the segments narrow and recurved, 3 inches long—double the length of the slender flower-tube.

Cymbidium Simonsianum, King and Pantling, tab. 7863.—A Sikkim species, allied to C. longifolium, and resembling the old C. aloifolium.

Catasetum grandidens, Rolfe, t. 7864.—The male plant is here figured, remarkable for its greenish flowers, heavily barred and spotted with purplish-brown markings. The anterior lobe of the lip is yellow, thickly beset with purplish dots. The female plant has been discovered since the present figure was made. The flowers are green, and quite different in form from those here figured.

Lavatera acerifolia, Cavanilles, t. 7865.—A pretty Malvaceous shrub, with long-stalked, cordate, palmate leaves with ovate, acute lobes, of which the terminal one is the larger. The petals are pale rose, their claws more deeply coloured. The specimen figured was introduced from the Canaries by WALTER GARDINER, Esq.

Bauhinia acuminata, Linnæus, tab. 7866.—A curious tropical shrub, with bi-lobed leaves and clusters of nearly regular white flowers. Kew.

ROYAL FLORISTS.—Messrs. DOBBIE & Co., Rothesay, Bute, and Orpington, Kent, have been appointed seed growers and florists to His Majesty the KING. Messrs. DOBBIE & Co. held a similar appointment to the late Queen VICTORIA.

THE SURVEYORS' INSTITUTION.—The first ordinary general meeting of the session 1902—1903, will be held on Monday, November 10, 1902, when the President, Mr. ARTHUR VERNON, will deliver an opening address. The Chair will be taken at eight o'clock.

—— Those proposing to enter their names for the Students' Preliminary Examination to be held on January 14 and 15 next, must intimate their intention to the Secretary before the last day of November. It is proposed to examine candidates from the counties of Lancashire, Cheshire, Yorkshire, Durham, Cumberland, Westmoreland, and Northumberland, at Manchester. Candidates from other counties in England and Wales will be examined in London; Irish candidates in Dublin; Scottish candidates in Glasgow.

—— The Students' Proficiency Examination will commence on March 16 next. Examinations qualifying for the classes of Professional Associates and Fellows, will also commence on March 16 next. All particulars as to days, subjects, and course of examination, will be forwarded on application to the Secretary. English candidates for the professional examinations will be examined in London; Irish candidates in Dublin; Scottish candidates in Glasgow.

LORD MAYOR'S SHOW. — The Gardeners' Company is this year to take part in the ceremonial. A Floral Car is to be provided, representing the garden industry. The floor of the car is to be laid out as a flower garden, with rockery, &c. A canopy rising from the corners is to support four cornucopiæ, filled with choice blooms; from the centre is to depend a basket of trailing creepers and flowers. The sides of the car are to be edged with Smilax, and draped with the colours of the Guild, on which are embroidered the arms of the Gardeners' Company. The car is to be drawn by a team of six horses, and attended by gardeners in costume.

TREATMENT OF TROPICAL PLANTS, ETC.—We have received from M. D. BOIS his paper on "La Récolte et l'Expédition des Graines et des Plantes Vivantes des Pays chauds," which deals with a subject of much importance to packers and importers of exotics. Great losses frequently result from careless handling of roots and seeds, and if collectors will take the hints offered to them in this paper many accidents will be averted. M. D. BOIS has also published a *Tableau Synoptique des Principaux Genres d'Orchidées*, which should prove useful as showing at a glance, in tabulated form, the principal characteristics of the several genera. The paper is written in collaboration with M. J. GÉRÔME.

PASSIFLORA MACULIFOLIA: LEAVES YELLOW-SPOTTED, PURPLISH BENEATH; FLOWERS CREAM-COLOURED. DRAWN BY WORTHINGTON G. SMITH.

DECORATED AUTOMOBILE.—It will certainly be admitted that an automobile as usually seen is not a very attractive-looking object. The *American Florist* shows how this may be altered, for it gives an account and a figure of a decorated automobile taken on October 6 last, at Washington, during the parade of nearly 100 decorated, self-propelling vehicles. The carriage in question won a Silver Loving Cup as the most handsomely decorated of any in the line. The work was done by A. GUDE & BROTHER. The auto was a bower of Roses, Chrysanthemums, and Carnations. The front was completely covered with Kaiserin and American Beauty Roses, and the sides were gay with Carnations and Asparagus Sprengeri, with huge satin bows and streamers. The rear of the carriage was banked with red Roses and white Chrysanthemums, while the wheels were of red Roses.

APPLE EDWARDS' CORONATION.—We hear that this new variety of Apple, raised by Mr. H. C. PRINSEP, gardener at Buxted Park, Uckfield, has come into the possession of Mr. G. PYNE, of the Denver Nurseries, Topsham.

SOMETHING LIKE A DECORATION.—A gentleman connected with the Ministry of Agriculture in Paris has received the Cross of the Order of Solomon of Ethiopia!

M. BURVENICH.—We are pleased to record the fact that the services of the eminent fruit-grower and pomologist of Ghent has been recognised by the Dutch Government, who have created him a Chevalier of the Order of Orange Nassau. In his lectures and writings on fruit culture, M. BURVENICH has availed himself, not only of his native Flemish and French, but also of the Dutch language.

CHRYSANTHEMUMS IN FRANCE. — Early Chrysanthemums have for some weeks past been seen at the exhibitions of the Société Nationale d'Horticulture de France. Several novelties have been staged. The most noteworthy feature hitherto has been the tendency to bring forward hardy outdoor varieties called "Decorative." M. NONIN, florist, of Châtillon sous Bagneux, Seine, has been prominent in this, showing many fine collections, and some fine new varieties among them, Champ de Neige, Jason, La Parisienne, Le Pactole, La Fiancée, Coquette de Châtillon, Roi des Blancs, Espérance, Perle Châtillonnaise, and other sorts that were much admired.

CHARLES MARIES.—Many of our readers will learn with regret of the death—which took place quite suddenly a short time ago—of CHARLES MARIES, Superintendent of the magnificent gardens of Gwalior. We shall present our readers, in our next issue, with a sketch of his career, and of his travels in Japan as a plant collector.

HOME CORRESPONDENCE.

TO COVER A ROOF WITH LICHENS.—A correspondent, "F. A.," in last week's issue of the *Gardeners' Chronicle* is desirous of being made acquainted with a method by which a Lichen may be made to grow upon a roof. I would advise him to obtain tiles and stones that are clad with various species of Lichens and fasten them on to the roof, where, in the course of time, they will disperse their spores and small particles of plants over the roof. The best for this would be some of the species of Lecanora, Lecidea, and Parmelia, which are in some districts easily obtainable. I doubt if there is any work on their propagation, &c. *E. Sandford.*

EXPERIMENTAL MANURING.—Your correspondent, Mr. A. Dean, seems to think that the Royal Horticultural Society should conduct trials on this subject. But to the gardener I do not think it matters much who conducts the trials, or who finds the sinews for carrying on these experiments, providing he gets the information. It is quite natural that those who find the funds should reap some commercial benefit from an increased sale of their chemical or artificial manures. "A grain of salt" is necessary with many things now-a-days. I have had the pleasure of listening to Mr. Shrivell on several occasions when lecturing on "Manure Trials," and have applied the several manures he recommends with very satisfactory results. Mr. Shrivell does not recommend artificial manures to the exclusion of ordinary farmyard manure, but rather a combination of the two. *T. H. Slade.*

THE DAY CRY OF THE OWL.—Your correspondent who asks, "Why the owl should keep up its notes in the daytime?" does not state which of the British species it is; nor does he give any information as to the kind of call. But ornithologists may gather that it is probably the cry of the young of the long-eared owl (Asio otus, Lin.). So far as one has been able to ascertain, the old birds of this species make no call in the daytime during the commencement of the nesting season, but when the young ones have gained strength, and can sit out among the branches of the nesting-tree, then it is that one hears their quaint diurnal call, which may be likened to the creaking of an old signboard. It is often repeated, and more especially so when the youngster gets hungry; and, moreover, it is somewhat difficult to locate, as there is a decided touch of ventriloquism about it. Go into the wood on such an occasion, and if you can "spot" one of the youngsters you will be amply rewarded. Probably the downy youngster is sitting near to its nest, but if its flight-feathers are well developed, it may be some distance from its old home. Sometimes, though rarely, one may be able, as the writer has been, to find a youngster sitting low down among the branches, and within easy reach from the ground. Until you have actually touched the youngster with your hand, it will remain almost as motionless as a statue; but if you have nerve enough to haul it down from its perch, you will be astonished, and probably not a little alarmed, to find it assuming a most terrifying attitude of defence, with its wings spread out somewhat like an angry turkey-cock; added to which it hisses and snaps its beak as only an owl can do, with its fiery eyes looking the very acme of courage. But all this show passes away as the bird becomes accustomed to its unwelcome intruder. While you are being interested in the behaviour of the youngster, one of the parent birds is sure to put in an appearance in the trees hard by, and uttering its peculiar cry of alarm or warning, endeavours by spreading out its wings and other extraordinary gestures to feign a wounded bird—this of course to allure you from the vicinity of the family residence. Attention has already been called to the diurnal habits of the long-eared owl (see *Gardeners' Chronicle*, Sept., 1901, pp. 197, 217), and also some particulars as to its food; and while it consists for the most part of mice and beetles, there is a larger percentage of small birds, up to the size of a starling, found in the "pellets" or "castings" of this species, than in the larger members of this useful and quaintly interesting family of the Strigidæ. *R. Newstead.*

FIG. 117.—YOUNG OF THE LONG-EARED OWL.

PACKING OF GRAPES.—In the *Gardeners' Chronicle* for Nov. 1, Mr. Thos. Christy writes *re* price of Grapes, and says that the fault lies with the growers in packing. As I am very much interested in the same subject, I should be glad to pick up any hints towards improvement in that respect; but I should first of all advise Mr. Christy to make himself better acquainted with subjects he is interested in before he gives advice to others. Just to instance a few of his mistakes: Firstly, receivers of Grapes, or Grape salesmen, locate themselves at Covent Garden market, and not in Leadenhall; secondly, French Grapes do not arrive in this country in 1 lb. boxes; Belgian ones used to do so years ago, but they found it better to adopt the English system of handle-baskets, or shallows. Thirdly, the baskets growers send in do not average from 12 to 18 lb., but nearer half that weight; fourthly, the growers of Grapes are quite aware of the development in cheap boxes, the writer also, having to import wood by the cargo for the purpose; fifthly, the English growers have not to learn of the Americans how to pack Grapes, while they are obliged to have English goods packed by English packers, and in the English system, in all the best fruit shops in New York, Philadelphia, Boston, and elsewhere. Sixthly, he has evidently not tried the tender mercies of the P. O. in regard to any soft fruit, or he would not mention it in suggesting improvements in transit. Finally, I will ask him to approach a Grape grower, and ascertain how he would like his bunches of Muscat, Alicante, or Colman mutilated and levelled down to a 1-lb. box. I must apologise for taking up so much of your space, but the question is an important one to all concerned—so much so to me, that I will be glad to hand the Gardeners' Royal Benevolent Institution a handsome cheque if Mr. Christie or anyone else can give me any practical suggestions to improve the packing of Grapes. *Geo. Monro, Covent Garden Market, Nov. 4.*

EXPERIMENT WITH POTASH MANURES ON ONIONS (see fig. 116, on page 337). — The following account, showing as it does, the value of potash and superphosphate when used as a manure for Onions, may prove interesting to those of your readers who are of an experimental turn of mind. In the autumn of 1901, I carefully staked out a piece of my garden (a clayey loam), measuring 2 square rods. Into one half of this, I forked the following mixture: 1½ lb. sulphate of potash and 3 lb. of superphosphate. The other half had no dressing whatever. Early in March, each plot was sown with Fidler's Improved Reading Onion, at the rate of 1 oz. of seed to the rod. Each plot received the same amount of attention during the growth of the crops, and the results, as shown in the accompanying photographs, speak for themselves. The manured portion produced eight and a half pecks, none of which were small enough to be called "picklers," many weighing ½ lb. to ¾ lb. each. The unmanured portion produced six pecks, none more than medium size, and amongst them rather more than a peck of "picklers." The excess of produce on the manured portion was thus two and a half pecks. I hope to send you results of a similar experiment with Peas in the course of a few days. *G. Ludbrook, Darsham.*

IPOMŒA RUBRO-CŒRULEA. — The charming bouquet of flowers sent by Mr. Fyfe, from Lockinge Park, to the Drill Hall on Tuesday last, came as a surprise doubtless to many at this season of the year, not only the size but the beautiful blue colour of the flowers, should have guaranteed its popularity never waning. Yet many, apparently, only saw it then for the first time. The plant has been known to cultivation for more than seventy years, and at one time was largely grown in the more lofty conservatories and greenhouses, where the wealth of blossoms produced filled the visitor with amazement. In some large gardens, this old Mexican climber is still grown, and in a few instances it is treated as a perennial. I believe it was well grown at Westonbirt many years ago. Latterly, however, the habit has been to grow the plant from seeds, treating it as a biennial or even as an annual. In this way, however, while lending itself to a smaller class of greenhouse, the old time beauty and profusion is to a large extent lost, and one could wish for a return to the days of yore, when such plants were grown from year to year. That any flower of so beautiful a shade of colour in these days of profuse decoration should be almost forgotten, is certainly no gain, for the floral decorators might possibly conceive some unique arrangement could such flowers be obtained. Let us hope that the exhibit referred to may be the means of calling attention again to this fine plant, which is quite at home in a warm greenhouse. *E. Jenkins.*

CHRYSANTHEMUM NOTES.

AT EARLSWOOD.

Messrs. W. Wells & Co., of the Earlswood Nurseries, near Redhill, have become famous for the introduction of a number of first-class seedling varieties raised in Australia. In the course of twenty-five years Mr. W. Wells has never introduced to commerce such excellent novelties as those he has obtained quite recently from Mr. T. W. Pockett, who raises an enormous number of seedlings in the open air near Melbourne, and sends to Messrs. Wells only those that have shown sufficient constitution to succeed perfectly there under the conditions afforded by an open garden.

There is certainly no more attractive Japanese Chrysanthemum than that known as Lord Ludlow, especially when grown by Mr. Wells. We saw a score of blooms at least, at Earlswood, ten days ago, large, deep, of a rich golden colour, most of the florets margined with crimson, and drooping away from the centre of the flower-head, but incurved at the tips, which are perfectly spoon-like. It is a variety that is said to offer some little difficulty to many cultivators, but it is one deserving the grower's most persistent efforts. The Australian varieties generally, however, are singularly free in habit, and every cultivator may succeed with most of them. Mrs. T. W. Pockett, Nellie Pockett, and W. R. Church may be mentioned as instances of Japanese varieties that are universally popular; and some growers will prefer them to the rather uncertain Madame Carnot and its sports; Mrs. T. W. Pockett is dwarfer than G. J. Warren, being about 4½ feet high in 8 and 10-inch pots. In late buds the florets become a little twisted, and are richer in colour than earlier flowers.

A Yellow Nellie Pockett.

Those who admire Nellie Pockett (see fig. 113, p. 334) may be glad to know that a yellow sport from this variety can be seen at Earlswood. Mr. Wells has purchased three different stocks from various parts of the country, and has called the sport "Cheltoni." When mention was made above of the variety Lord Ludlow, we should have referred to another one called Donald McLeod, very similar to Lord Ludlow, but developing rather more crimson-bronze colour from late buds, and possessing slight differences in the form of florets and build of flower; T. Humphreys, introduced last year, is a most refined and exceedingly bright crimson decorative Japanese, rather undersized perhaps for exhibition, but extremely valuable for other purposes, as the plants succeed admirably in small pots as well as larger ones. Another of the same type, and a novelty that has just flowered, will be the gem of the Earlswood set for distribution in the coming season; it has been named after Mr. S. T. Wright, of the Chiswick Gardens, and will be likely to prove a formidable

Rival to Ed. Molyneux.

The colour is a bright, velvety-like crimson, and the reverse is of a gold colour. The florets are smooth, of considerable length, satisfactory in width, and they show but little of the underside. The bloom we saw was of the type growers term "solid," and measured 7 inches across.

Another new one known as Harrison Dick is a golden-yellow coloured Japanese, marked with bronzy-red; its habit is good, and its stature but 3½ feet. There were several seedlings, as yet unnamed, that promise to be satisfactory when ready for exhibition, including an incurved variety. Among other flowers that especially called for remark in the house measuring 160 feet long and 22 feet wide, which was filled with a well cultivated and choice collection, were those following: Ben Wells, introduced last season, an enormous white or blush flowered Japanese, with extremely long, drooping florets; Madame L. Chévant, a pink coloured Japanese of smooth florets, one of M. Calvat's novelties this season; General Hutton; Mrs. Alex. McKinley, an Australian seedling introduced last season, colour reddish-brown or "bronze," as it is called, a good flower of moderate depth, the habit of plant dwarf and sturdy; Ethel Fitzroy (Weeks), Hon. Mrs. Tennant (Weeks), an incurved Japanese, with extremely broad florets, wrapped up like a chrysalis, the reverse colour of silvery-white being alone conspicuous; Mrs. Geo. Mileham, Mrs. Barkley; Mary Inglis, an immense Japanese, colour yellow marked with red, very promising; Lord Alverstone, a crimson Japanese (Australian), introduced last season; and several of Mr. Godfrey's last year's seedlings, as Masterpiece, Queen Alexandra, Godfrey's Pride, &c.

The single-flowered varieties that Mr. Wells grows so largely were scarcely in flower (Oct. 28), but the earlier decorative sorts, many of which have been raised by Mr. Goacher, were still blooming abundantly out-of-doors.

AT THE "HOME OF FLOWERS," SWANLEY.

Messrs. H. Cannell & Sons have a grand show of Chrysanthemums in their great span-roofed exhibition-house, measuring 165 ft. by 25 ft. Mr. H. Cannell, sen., was among the first to cultivate Chrysanthemums in this country, and in the earlier days imported plants direct from Japan. Some of the very best-known varieties were distributed from Swanley, two most familiar instances being those of the redoubtable Edwin Molyneux, and the rich, golden-coloured Japanese Sunflower. Varieties succeed each other so swiftly, excellent novelties of one decade being quite surpassed by those of the next, that it is indeed rare, and we think unique, at least in the Japanese section, for a variety to figure upon exhibition-stands for a period of nearly twenty years. The variety Edwin Molyneux was introduced by Messrs. Cannell in the eighties, as a plant from Japan, where it is supposed it originated as a seedling. There were then in cultivation in England, very few large flowering sorts possessing rich colours, and not one that was comparable to the novelty, the introduction of which caused more interest than has been raised by any variety obtained since.

Many Richly Coloured Varieties.

There have been many of a similar type, but none has so far superseded Ed. Molyneux. Whether a novelty of the present season will do so, time will show. Mr. Wells' Australian seedling S. T. Wright, is described above, and Messrs. Cannell have a seedling also from Australia named Lord Hopetoun, that may prove to be a good companion to Ed. Molyneux, but will not be quite so bright in colour. A flower we saw at Swanley (Oct. 31) was 8 in. across, with straight smooth florets, colour crimson with bronze reverse; the reverse colour is seen only in the centre when the flower has perfectly opened. The habit is most free, and the plants hold their foliage to the base. It is likely to make an excellent variety for cultivation in market nurseries, allowing six or eight blooms upon each plant.

Two varieties that Messrs. H. Cannell & Sons introduced last season have proved to be excellent: the first is Mrs. Harry Emmerton, a large yellow Japanese, of good constitution; and the other General Hutton, an immense flower, occasionally 14 inches across, florets more than 6 inches long, colour yellow, suffused with bronzy-red. These two varieties, and most others of Messrs. Cannell's novelties, are Australian seedlings, several raisers in that colony supplying the firm from year to year. Mrs. Geo. Fairbairn is a new incurved Japanese; the florets are fluted, except the tips, which incurve, and are spoon-like; the colour is red, with buff reverse, and the red colour was noticeable in the spoon-like tips only. Mrs. Arthur Tuckett is an incurved crimson Japanese; Dr. Chisholm Ross is a seedling from Ed. Molyneux, of very bright colour, and excellent for decoration, but of less than exhibition size; Mermaid is a beautiful and big white flower, possessing excellent florets, which are of pale purple colour at base; Elsie Nevelle is a reddish-crimson Japanese with fine, broad florets. The pretty incurved decorative variety, Kentish White, has sported yellow, and the sport having occurred on the Continent, it is known as M. Anatole Rible.

A New Incurved.

Among Swanley novelties that have not originated in Australia, the most promising is a true incurved flower named Miss Muriel Tait. It was raised at Oporto, and the flowers we saw were about 6 inches across, and white or very pale lemon-coloured; it is most promising, and should be grown upon second crown buds. Madame L. Chevrant, one of M. Calvat's novelties, is of the type of Etoile de Lyon, but less rough—colour, lilac-shaded pink; Mme. Waldeck-Rousseau, also from M. Calvat, is a promising purple or violet-shaded crimson flower, with silver reverse, florets much twisted; Comtesse d'Estoile, a true incurved flower, white or pale pink colour, is also from the Continent.

Many other novelties of the present season, and of 1901, were noticed in Messrs. Cannell's collection. Among these were Pemie Roberts, a large, single flower, colour pink with white centre; Mrs. Rumble, a pink-coloured Japanese; Mrs. G. Golder, an English seedling very much resembling Bessie Godfrey; Princess Henry (Love), a hirsute variety, obtained by crossing the varieties Hairy Wonder and Mrs. White Popham; Matchless, a good crimson decorative Japanese; and Princess Patricia, an Australian seedling of last year. It is of Etoile de Lyon type, and in colour rich purple.

We will remark upon varieties of the zonal Pelargoniums, that are now so bright at Swanley, in a later issue.

PLANT PORTRAITS.

PAPAVER HYBRIDUM FLORE-PLENO FOLIIS AUREIS, Gold Mohn.—*Die Garten Welt*, October 11. We are not responsible for anything more than transcribing this preposterous name, a retrogression to the practice of the 16th century, from which it was hoped Linnæus had long ago delivered us. It seems to be a form of P. Rhœas, with double flowers and yellow foliage.

SOCIETIES.

ROYAL HORTICULTURAL.

TUESDAY, NOVEMBER 4, 1902.—The Drill Hall, Buckingham Gate, was very well filled with an interesting assortment of plants in flower, the Chrysanthemum being conspicuous in beautiful Japanese varieties. Orchids were unusually numerous for a meeting so late in the year, their owners being tempted doubtless by the mild weather; and many fine hybrids as well as undoubted old favourites were observed. Other than Orchids, Chrysanthemums, and Begonias, nothing very novel was noted. Several large displays of fruit were observed, including a very fine lot of Pines from the King's gardens at Frogmore. A lecture by Prof. G. Henslow on the nutrient properties of Wheat, Peas, Beans, Potatos, &c., brought the meeting to an end. It was of an instructive character, readily understood from the Professor's lucid explanations, and was attentively listened to by a rather numerous company.

Floral Committee.

Present: W. Marshall, Esq. (in the Chair); and Messrs. C. T. Druery, J. Walker, C. W. Knowles, J. F. McLeod, A. D. Barnes, J. Jennings, J. Hudson, C. Dixon, C. Jefferies, C. J. Salter, H. Cutbush, C. E. Pearson, C. E. Shea, W. P. Thomson, E. H. Jenkins, F. P. Roberts, W. J. James.

Messrs. W. BULL & SONS, new plant, seed, and bulb merchants, 536, King's Road, Chelsea, S.W., showed several rare picture plants, such as Aglaonema costata, with dark green leaves speckled with white; Nepthytis picturata, having white, irregular shaped blotches on the sagittate, green leaves; Aralia elegantissima, Dracæna Victoria, fine, large, broad leaves, banded with creamy-white; Davidsonia pruriens (the Queensland Plum), of which a large specimen at the nursery is in fruit at the present time; in the young state as shown, the pinnate foliage is highly ornamental. Aphelandra Blanchetiana, Maranta picta, Croton Reedi, Ficus radicans variegata, Phyllotænium, Cocos, &c., completed the exhibit.

Mr. H. B. MAY, Dyson's Lane Nurseries, Upper Edmonton, exhibited winter (perpetual) flowering Carnations in small groups, the pots embedded in masses of Adiantum Davallia, Pteris, Oplismenus Burmanni var. The colours of the Carnations were mostly shades of crimson, scarlet, and rose-pink, the sole exception being the variety Snowflake. We remarked Etna, America, Pride of the Market, Triumphans, brilliant scarlet, with a smooth petal, and good form; Resplendent, somewhat similar in form, but duller in colour than the last; Prince of Wales, nice regular bloom, deep crimson (Silver Flora Medal).

Messrs. JAS. VEITCH & SONS, King's Road, Chelsea, filled one side of 40 feet run of tabling with their hybrid winter-flowering Begonias, making a very striking and bright display. There were B. incomparabilis = Froebelli × polypetala, an erectly poised bloom of a scarlet colour; B. Mrs. Heal, B. Ideala and Julius, all of which have been described in these columns; B. Success is a crimson flower, darker in the centre; B. Agathea, bright pink, an improvement on Gloire de Lorraine, flowers larger, and brighter in tint. A panful of Dædalacanthus parvus, previously figured in these columns, was likewise included in the exhibits (Silver-gilt Banksian Medal).

J. D. LAMBERT, Esq., Moor Hall, Cookham (gr., Mr. J. Fulford), showed a group of the small-flowered white Begonia, Turnford Hall, the plants in 32's being well bloomed pyramids of 2 feet in height.

Messrs. J. PEED & SON, nurserymen, West Norwood, S.E., exhibited a large number of well bloomed dwarf-grown plants of Begonia Mrs. Leopold de Rothschild. They also showed Begonia Moonlight, nearly as well bloomed (Vote of Thanks).

Mr. C. B. GABRIEL, Easdale, Horsell, Woking, exhibited in glasses a quantity of unusually beautiful zonal Pelargoniums, large, brilliantly coloured, with fine developed pips and trusses (Silver Flora Medal).

Messrs. BARR & SONS, King Street, Covent Garden, London, W.C., exhibited a group consisting chiefly of Asters, Chrysanthemums, in double and single-flowered varieties; Kniphofias, Lobelia cardinalis, Virginian Poke, in berry; Gladiolus, Phlox, &c.

Mr. JOHN RUSSELL, Richmond Nursery, Richmond, showed a nice-looking Cupressus orientalis of a golden tint; and also showed an imposing group of Codiæums, Dracænas, Marantas, Alocasias, Ficus, &c., nicely diversified as regarded the leaf tints (Silver Banksian Medal).

Messrs. J. WATERER & SONS, Ltd., American Nurseries, Bagshot, Surrey, exhibited a large floor group of variegated and green-leaved Conifers. These included various Retinosporas, and amongst them some pretty specimens of R. leptoclada, R. obtusa variegata alba, R. plumosa aurea, R. variegata argentea; besides the white and the variegated forms of Juniperus japonica, Abies concolor, Sciadopitys verticillata, in good form, and a specimen of Tsuga Hookeriana. Hollies, Osmanthus, and Skimmias were included in the exhibit (Silver Banksian Medal).

Messrs. CUTBUSH & SON, Nurseries, Highgate, London, N. showed a new tree Carnation, Duchess of Portland, a pretty cerise coloured flower, with a Picotee edge to the petals; the plants 2 feet in height, and each bearing two open flowers, besides several buds (Award of Merit).

LEOPOLD ROTHSCHILD, Esq., Gunnersbury House, Acton (gr., Mr. J. Hudson), showed a plant of Mesembryanthemum roseum Robertianum, taken from the open ground, carrying a considerable number of flowers. The form was flat, circular, about 3 feet in diameter.

Mr. M. W. FYFE, gr., Lockinge, Wantage, showed flowers arranged in a flower stand, of Ipomœa rubrocœrulea, an old inmate of the garden, which had a remarkably striking effect.

Mr. GODFREY, nurseryman, Exmouth, showed zonal Pelargonium, Duchess of Cornwall, as plants in flower.

Mrs. EDITH BRADLEY, Lady Warwick's Hostel, Reading, exhibited a superior lot of fruits in bottles; also preserved in a similar manner, Rhubarb, Carrots, Celery, &c., together with a specimen of a preserving apparatus for home use.

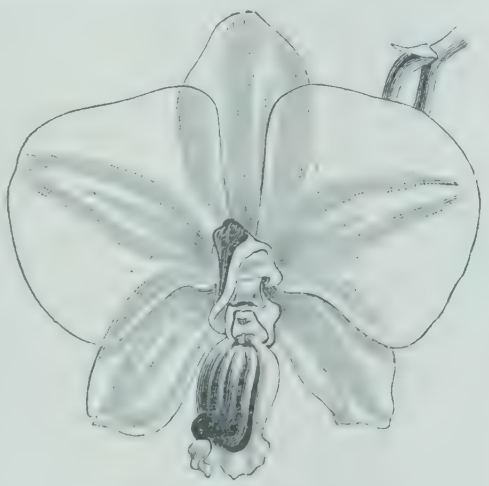

FIG. 118.—PHALÆNOPSIS LOWII.
Exhibited on Tuesday last by the Hon. Walter Rothschild.

Mrs. LANCASTER, The Rookery, St. Mary Cray, showed fruits and foliage of Stauntonia latifolia. The general resemblance to the fruits of the purple Aubergine was remarkable.

BOTANICAL CERTIFICATE.

Kalanchoe marmorata.—A plant having a height of 4 feet, and surmounted with a large corymb of cream-white tubular flowers, in shape like those of a Nicotiana, was shown. Leaves are greyish-green with brown spots.

CHRYSANTHEMUMS.

The largest exhibitor of the Chrysanthemum was Messrs. WELLS & Co., Ltd., Redhill, Surrey, who set up a bank of these flowers, sufficient in its many varieties and varying types to satisfy even a specialist. Large flowers and small, single and decorative, named and unnamed, there was material enough to study the whole aspect of present-day Chrysanthemums. The arrangement too was excellent throughout. In the background, tall single-flowered kinds, such as the sulphury Oldfield Glory, were extremely well placed, and showed to perfection against the crimsons arranged at right and left of them. Then in groups here and there appeared such fine things as Donald McLeod, rich gold; Cheltoni, gold; the fine yellow Mrs. Pockett; Madame Herrewege, a very handsome white; Mrs. A McKinley, gold and orange, an enormous flower; Mrs. J. Wells, crimson; Miss Evelyn Douglas, pink; Hester Edwards, a striking shade of salmon-buff with pink, in a very handsome flower; and, not least, the crimson Lord Alverstone, which is very striking. Lightly placed amid these were decorative and single-flowered kinds, such as Miss J. Ferguson, Annie Tweed, crimson; Miss Holden, yellow; Miss Anderson, and such like. The front was lined with dwarf Pompons, &c., and of these alone there was a great array.

In another direction, Mr. WELLS set an example with large blooms, by arranging a margin of some two dozen blooms of Mrs. T. W. Pockett, and every bloom a good one. Apart from these, or rather behind them, a feast of big blooms were arranged on boards; and here we noted S. T. Wright, which is mentioned under Awards; Pantia Ralli, a bronzy incurved Japanese, very fine; W. R. Church, crimson and gold, extra fine; Mrs. G. Mileham, Miss Alice Byron, and many others. It was a formidable lot of material, and of the best quality. A Silver-gilt Flora Medal was awarded.

Another group was that from Mr. R. FOSTER, Nun head Cemetery, the group taking the form of a half-circle with high back. There were many blooms of great excellence, but the varieties not being named, we are unable to give them in detail (Silver Banksian Medal).

A nice group of cut Chrysanthemums was staged by PERCY R. DUNN, Esq., Brockley Park, Forest Hill, that reflected the highest credit upon the amateur named, many of the blooms being of fine size, and well developed. Among leading sorts we noted Master C. Seymour, Geo. Lawrence, Sir Herbert Kitchener, Mrs. G. Mileham, Miss E. Fulton, very fine white; Mrs. Greenfield, rich gold; and Miss Hetty Dean, white. The flowers were well arranged, and stood amid small plants of Carex and Asparagus Sprengeri, were seen to good advantage (Silver Banksian Medal).

The following received an Award of Merit:—

Chrysanthemum Harry Shrimpton.—This is a Japanese of the largest size, and a well-built flower generally; the ground-colour is gold, over which a red or chestnut shade is freely laid. Shown by Mr. W. SEWARD, Hanwell.

Chrysanthemum Mrs. J. Seward.—This kind a few years since would have been regarded as a Japanese incurved, but is now placed as a true incurved, yet not of the type of the old incurveds. The colour is rich yellow, and the florets folding upward and inward to the centre make up a flower of rather formal pattern. Shown by Mr. W. SEWARD, Hanwell.

Chrysanthemum S. T. Wright.—A grand crimson velvet shade in a flower of large size. Next to the richness of its colouring, the broad florets attract largely, for it is these that give it the massive appearance it possesses. In some flowers of this colour there is too much of the reverse shade seen; but this is not the case with the present novelty, whose petals incline to droop somewhat. Exhibited by Messrs. WELLS & Co., Ltd, Earlswood, Redhill.

Orchid Committee.

Present: Harry J. Veitch, Esq., in the Chair; and Messrs. Jas. O'Brien (Hon. Sec.), J. Gurney Fowler, H. Little, J. W. Potter, F. W. Ashton, W. H. White, W. H. Young, W. Boxall, H. A. Tracy, J. W. Odell, E. Hill, G. F. Moore, J. Cypher, J. Charlesworth, F. A. Rehder, J. Douglas, H. Ballantine, and de B. Crawshay.

The comparatively mild weather brought a large number of exhibitors, about a dozen good groups being staged, and numerous novelties were submitted to the Committee.

The Hon. WALTER ROTHSCHILD, M.P., Tring Park (gr., Mr. E. Hill), sent a very interesting collection of rare "botanical" Orchids, for which a Silver Banksian Medal was given. They included the very handsome and unique Cirrhopetalum Rothschildianum, with an umbel of large cream-white and claret flowers with fringed upper segments; Stenoglottis longifolia, and its pure white variety; Sarcanthus teretifolius; Bulbophyllum Careyanum, in two varieties, with many spikes, the one with brownish and the other with pink flowers; the large and singular B. grandiflorum; Masdevallia corniculata, M. abbreviata, M. × Hincksiana, M. × Acis, M. × Doris, M. hieroglyphica, M. infracta, M. muscosa, and M. angulata; two plants of the pretty rose and purple coloured Phalænopsis Lowii (see fig. 118), Scaphosepalum gibberosum, Restrepia elegans, &c.

Captain G. L. HOLFORD, Westonbirt, Tetbury (gr., Mr. H. Alexander), received a Silver Banksian Medal for an effective group, chiefly of large specimens, two of the fine Vanda Kimballiana, recently illustrated in the *Gardeners' Chronicle*, being present, the larger with fourteen spikes, bearing together 115 flowers. Another grand specimen was Dendrobium formosum giganteum, with ten spikes, bearing together sixty fine white flowers with orange centres. Other plants noted were the pure white Dendrobium Phalænopsis hololeucum, Cattleya labiata, "Westonbirt variety," fine in colour and shape; C. × Ariel, Lælia pumila præstans, with nine flowers; and Vanda Sanderiana.

C. H. FEILING, Esq., Southgate House, Southgate (gr., Mr. C. Stocking), staged a very fine group of Cypripediums, most of the fine varieties of C. insigne, such as C. i. Sanderæ, C. i. Balliæ, &c., being represented. With them were C. × Memoria Moensii, good

C. × Leeanum, C. Stonei, C. Charlesworthi, C. × Nitens, C. Spicerianum, C. × Arthurianum, and other hybrids, one of which, C. × Harrisio-villosum, being a massive and distinct flower (Silver Flora Medal).

Sir F. WIGAN, Bart., Clare Lawn, East Sheen (gr., Mr. W. H. Young), secured a Silver Banksian Medal for a fine group, in which were a Cattleya labiata alba with three flowers; C. l. Cooksoniæ, a fine white flower with a purple lip, and other fine C. labiata; C. × Mantini nobilior, "Wigan's variety," of an intense purplish-rose colour; the new Zygonisia × Rolfeana, Lælia pumila "The Pearl," blush-white, with a pink tint at the front of the lip; Lælio-Cattleya × Frederick Boyle, two fine pans of Pleione Wallichiana, Cypripedium insigne "Harefield Hall varieties," C. i. Sanderæ, C. i. Wigan's variety, having a fine dorsal sepal resembling those of the C. nitens section; C. × Niobe, C. × Arthurianum, C. bellatulum album, Cymbidium Traceyanum, Cattleya superba, Odontoglossum × crispo-Harryanum spectabile, and the singular little Saccolabium calceolare.

J. BRADSHAW, Esq., The Grange, Southgate (gr., Mr. Whitelegge), showed a fine group, consisting principally of varieties of Cattleya labiata. Among the white or light coloured varieties there were C. labiata Pride of Southgate, C. l. Ariadne, C. l. Etona, C. l. America, and C. l. Amesiana, the last-named a pretty white, with lilac-pink tint on the lip. Also in the group were Lælio-Cattleya × Bletchleyensis "The Grange variety," with a very large purple lip; Dendrobium × splendidissimum grandiflorum, Oncidium Forbesii, O. varicosum, and varieties of Cattleya aurea (Silver Flora Medal).

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr., Mr. J. Davis), was awarded a Silver Banksian Medal for a very fine group, in which the varieties of Cattleya labiata were remarkable, the large central specimen bearing thirty-six flowers. With them were two heavily flowered Dendrobium aureum, Lælio-Cattleya × Decia, and other hybrids; Cypripedium × Captain Holford (hirsutissimum × superbiens), a very large and finely spotted flower; C. × Troilus, C. × Uhlemanianum, C. insigne Laura Kimball, and others.

Messrs. JAS. VEITCH & SONS, Chelsea, were awarded a Silver Flora Medal for an excellent group of hybrid Orchids, in which the Cypripedium Fairieanum hybrids were interesting as showing progressive work. They comprised C. × Arthurianum (Fairieanum × insigne), C. × Arthurianum pulchellum (Fairieanum × insigne Chantini), C. × Baron Schroder (Fairieanum × œnanthum superbum), and the new C. × Thalia (insigne Chantini × Baron Schroder), a second crossing which has intensified the beauties of the fine C. × Baron Schroder (see Awards). The parents used in the productions shown, except C. Fairieanum, were also exhibited. Also in the group were Cattleya × Portia, C. × Ella, C. × Minerva, C. × Mrs. J. W. Whiteley, C. × Mantini, Lælio-Cattleya × Decia, L.-C. × Eva, L.-C. × Euterpe, L.-C. × Bryan, L.-C. × Gottoiana, L.-C. × Dominiana Langleyensis, &c.

Messrs. CHARLESWORTH & Co., Heaton, Bradford, secured a Silver Banksian Medal for a good group of hybrid Orchids, including their fine Cattleya × Iris C. × Portia, C. × Mrs. J. W. Whiteley, C. × Clarkei, Lælio-Cattleya × luminosa, L.-C. × Ingrami, the reddish-scarlet Sophro-Cattleya × Nydia, Cypripedium × Arthurianum, C. callosum Sanderæ, and C. insigne Sanderæ.

JEREMIAH COLMAN, Esq., Gatton Park (gr., Mr. W. P. Bound), staged a group in which were some excellent forms of Cattleya labiata, C. Bowringiana, Dendrobium Phalanopsis, and Cypripediums, including the yellow C. insigne Sanderæ, and C. i. Youngianum. Two specially interesting plants in the group were Cattleya × suaviour (intermedia × Mendeli), a pretty white and rose hybrid flowered by Messrs. Veitch, from plants of their raising in 1887, and a fine plant of Trichosma suavis with many spikes of flowers (Silver Banksian Medal).

Messrs. SANDER & SONS, St. Albans, staged a good group in which the fine hybrid Cypripediums were remarkable. The best were C. × Coronis (Leeanum giganteum × Lynchianum), C. × Evelyn Ames superbum (Leeanum giganteum × Calypso Oakwood variety), C. × Zenobia (callosum × Ashburtoniæ), and C. × Transvaal superbum. Other good things noted in Messrs. Sanders' group were a fine specimen of Dendrobium thyrsiflorum, Zygo-Colax × Amesianus, Cymbidium Tracyanum, Masdevallia nidifica, Sarcanthus ornithorhynchus, Habenaria Susannæ, and Cynorchis purpurascens (Silver Banksian Medal).

Messrs. HUGH LOW & Co. had a good group of Cattleya labiata, including the fine white C. labiata Amesiana, and C. l. R. I. Measures, both of which had pale pink markings on the lip; and the lavender-blue tinted C. l. glauca. Also noted were Cypripedium × gigas Corndeani, a fine, bold flower; C. insigne Sanderæ, Bulbophyllum Careyanum, &c. (Silver Banksian Medal).

Mr. J. CYPHER, Cheltenham, staged a small group, including Cypripedium insigne "Harefield Hall," C. i. Sanderæ, C. i. montanum aureum, an unusually fine and distinct form; C. × Charlesianum, C. × Leoniæ, C. × Memoria Moensii, &c.

H. T. PITT, Esq. (gr., Mr. Thurgood), sent a Zygo-Colax ×, Lælio-Cattleya × Statteriana Rosslyn var. with a rich ruby-claret front to the lip; Cattleya × Mrs. Pitt (Harrisoniana × Dowiana aurea), and Cypripedium insigne Sanderæ.

Mr. H. A. TRACY, Twickenham, showed a Cattleya labiata cœrulea, the whole flower having a decided blue tint, the labellum being the darker.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr., Mr. Gilbert), showed Cypripedium niveum Westfield variety, a good, large, white form; a good variety of C. insigne, and the fine Oncidium × Mantini superbum, which secured an Award.

DE B. CRAWSHAY, Esq., Rosefield, Sevenoaks (gr., Mr. Stables), showed Odontoglossum crispum Poultoni, a pretty novelty with white flowers, heavily blotched with purplish-rose, and which should develop into a very fine variety.

Sir JAS. MILLER, Bart., Manderston, Duns (gr., Mr. J. Hamilton), showed a fine spike of Lælio Cattleya × Hamiltoni (C. bicolor × L. Dayana) with showy dark rose flowers, having elongated purple labellums.

R. I. MEASURES, Esq., Camberwell (gr., Mr. Smith), sent Cypripedium insigne, "Miss Corbett," a graceful yellow flowered variety, not so fine in shape as some others.

M. OTTO FROEBEL, Zurich, sent a fine spike of Vanda Sanderiana Fœbeliæ, with almost circular flowers of a very fine colour.

AWARDS OF MERIT.

Cypripedium × *Thalia* (insigne Chantini × Baron Schroder), from Messrs. JAS. VEITCH & SONS.—A great advance on previous hybrids of its class in form, size, and colour. Petals and lip yellow, marked with dark purple; the fine orbicular dorsal sepal white, bearing dark purple lines and spotting.

Oncidium × *Mantini superbum*, from FRANCIS WELLESLEY, Esq., Westfield, Woking (gr., Mr. J. Gilbert).—The finest form of this showy natural hybrid which has yet appeared. The large flowers were bright yellow, heavily marked on the sepals and inner portions of the petals with light brown. The margins of the petals also had some brown markings, and a semicircular band of reddish-brown blotches on the fine yellow lip.

Cattleya × *Mrs. Pitt* (Harrisoniana × Dowiana aurea), from H. T. PITT, Esq. (gr., Mr. Thurgood).—Flowers of fine substance, rose-pink, the long, wavy-edged lip being rich orange in the central portion.

Cattleya labiata Amesiana, from J. BRADSHAW, Esq., and Messrs. HUGH LOW & Co.—Flowers white, with a delicate lilac-pink tint on the lip.

Cypripedium × *Transvaal superbum* (Chamberlainianum × Rothschildianum), from Messrs. SANDER & SONS.—A very distinct and attractive hybrid, that shows strong traces of C. Chamberlainianum. Upper sepals pale green, heavily striped with chocolate colour; petals long and extended, pale green, spotted with dark purple; lip rose coloured with yellow upper margin.

Cypripedium × *Evelyn Ames superbum* (Leeanum giganteum × Calypso Oakwood var.), from Messrs. SANDER & SONS.—A worthy offspring of two worthy parents, and an advance on C. × Leeanum giganteum, which, in its delicate tints and fine white in the upper sepal, it most nearly resembles, with the addition of a purple band up the dorsal sepal.

CULTURAL COMMENDATION.

To Mr. H. Alexander, Orchid grower to Captain HOLFORD, C.I.E., Westonbirt, for a noble plant of Dendrobium formosum giganteum, with ten spikes, bearing together sixty flowers.

BOTANICAL CERTIFICATE.

Cynorchis purpurascens, from Messrs. SANDER & SONS.—A fine Madagascan species with long, fleshy leaves, and fine heads of purple flowers.

Fruit and Vegetable Committee.

Present: H. Esling, Esq., in the Chair; and Messrs. W. Bates, S. Mortimer, A. Dean, G. Kelf, W. Pope, M. Gleeson, G. T. Miles, J. Basham, F. Q. Lane, G. Norman, J. Smith, J. H. Veitch, G. Wythes, J. H. Goodacre, and H. S. Rivers.

Mr. McKellar, gr. to His Majesty the KING, sent up from Frogmore Gardens, fourteen splendid smooth Cayenne and other Pineapples. These fruits were all beautifully finished, and of fine form, and weighed an average of 7½ lbs. each, the heaviest scaling 9 lbs. The Hogg Medal was unanimously awarded to the exhibit.

Mr. Divers, gr. to the Duke of RUTLAND, brought up from somewhat cold Belvoir, a remarkbly fine collection of Apples and Pears, considering the nature of the district. There were 100 dishes in all. Very fine in basket were Apples, Mère de Ménage, Peasgood's Nonsuch, Stirling Castle, Gascoigne's Scarlet, Dewdney's Seedling, a fine form; Warner's King, and Lord Derby; also in dishes, Bismarck, Pineapple, Golden Noble, Annie Elizabeth, Lady Henniker, and Sandringham; and of dessert varieties, Cox's Orange Pippin, Reinette du Caux, St. Edmund's Pippin, King of the Pippins, Worcester Pearmain, Allington Pippin, Eve's Apple, and Baumann's Red Reinette. Of Pears there were good Beurré Clairgeau, Emile d'Heyst, Marie Louise, Pitmaston Duchess, Welbeck Bergamot, Directeur Alphand, Doyenné Boussoch, and Dunmore. A Hogg Medal was also unanimously awarded to this collection.

On behalf of the Swanley Horticultual College Committee, Mr. C. HERRIN staged a very nice collection of Apples and Pears, comprising forty-three dishes, and some excellent vegetables. The varieties were many of them similar to those previously named, and generally were very clean and nice; also were very pleasingly staged. A Silver Knightian Medal was awarded.

Mr. Perkins, gr. to the Hon. F. W. D. SMITH, M.P., Greenlands, Henley-on-Thames, put up a group of twenty-four plants in pots of St. Joseph Strawberry, admirably fruited, also six punnets of capital ripe fruit (Silver Banksian Medal).

On behalf of the Committee of the Lady Warwick Hostel, Reading, Miss Edith Bradley, the superintendent, set up a very nice lot of bottled fruits and vegetables, including Plums, Cherries, Gooseberries, Currants, Pears, sliced Carrots, Celery, &c.; also a large sterilising can or apparatus, such as is used at the Hostel (Silver Banksian Medal).

Wonderful samples of Uvedale's St. Germain Pear were sent by Mr. BECKER, of Guernsey, grown by Mr. J. G. Romil. These grand fruits, of which there were fifteen, weighed in all 32¼ lb. (Silver Banksian Medal).

A similar award was made to Messrs. HARRISON & SONS, of Leicester, for a very representative collection of Onions in thirty varieties. Some of the finest, all grown under ordinary conditions, were Ailsa Craig, Lord Keeper, Up-to-Date, Reading, Banbury Cross, Somerset Hero, Bedfordshire Champion, Leicester Keeping, and Rousham Park Hero.

Mr. S. T. WRIGHT reported that the large, immense cropping Damson shown at the previous meeting by Messrs. JAS. VEITCH & SONS, Chelsea, had been cooked, and found of first-rate quality. The variety to be known as the Langley Bullace, the product of crossing Farleigh prolific Damson with the Orleans Plum, was granted an Award of Merit. A similar award was made to a new Raspberry shown by the firm, product of a cross between the American Catawissa and Superlative. It is a wonderful cropper, fruits large, and of fine quality; it is to be known as November Abundance.

To Mr. Goodacre, gr. to the Earl of HARRINGTON, Elvaston, was given an Award of Merit for his fine new Imperial Black Grape, the berries large, oval, and as shown at the previous meeting, a good setter. It was regarded as likely to make a good market Grape. With it also were bunches of Diamond Jubilee and Black Morocco, the latter poorly coloured, but the best in flavour.

Mr. BASHAM, Bassaleg, sent Apple Tamplin, conical, medium size, prettily striped red, and of nice flavour (Award of Merit).

Finally, an Award of Merit was given to both Messrs. SUTTON & SONS, Reading, and to Messrs. VEITCH & SONS for Christmas Rhubarb, a variety from the Antipodes, which roots in the summer and makes its growth in the autumn. The stems of the samples sent were about 18 inches long, finely coloured, and of good quality. It was grown without protection; in hard weather, tubs or boxes should be put over the stems.

Mr. Harris, gr. to A. W. SUTTON, Esq., Bucklebury Place, Berks, sent a nice dish of St. Joseph Strawberry (Vote of Thanks).

A Pear (house-grown) Beurré Späe, from Langley, was required to be seen from the open air.

Several seedling Apples were shown, but were devoid of merit.

An Apple from Mr. BRANDT, shown at the previous meeting and sent to Chiswick for identification, was found to be Brabant Bellefleur.

NATIONAL CHRYSANTHEMUM.

(NOVEMBER 4, 5, 6)

CHRYSANTHEMUMS are again the principal plants in flower in most gardens, and public exhibitions of them are being made in a large number of localities. At present there appears to be no possibility of the Chrysanthemum losing its position as the most valuable autumn-flowering plant; for its culture is easy and inexpensive, and it yields a return that few flowers could be expected to do. Whether Chrysanthemums will cease to hold the extraordinary popularity they have obtained as exhibition flowers is uncertain; there is not much indication of such a thing happening in the near future—though many people believe that their fate is now in the balance.

The annual exhibition of the National Chrysanthemum Society, which was held in the Royal Aquarium Westminster, was very well supported, and probably there were as many exhibits as usual, though some of the classes appeared to us to be less full than we have seen them previously. As regards the quality of the blooms, there is no doubt but that the Incurveds required more time to "finish" perfectly, the character of the weather during the late summer having made the plants rather later than usual. The Japanese varieties were very little, if any, below the average, and in rich colours the collections show a decided improvement, owing to the raising of new varieties possessing this quality in a greater degree. The weight of the blooms shown in the class for sixty blooms in vases was generally thought to have been less than last year, and it was remarked that there were fewer collections in this class, which is undoubtedly a very exacting one, to even the largest growers.

Other types, those shown in a few classes, were fewer even than usual, and the same may be said of specimen-trained plants, which can be dispensed with very well.

Of the chief winners, those cultivators who took first positions last year have maintained them this, Mr. F. S. VALLIS won the £10 prize in the Vase Class; and the Holmes Memorial Challenge Cup and 1st prize, in the class for forty-eight Japanese blooms.

Visitors remarked that in many instances the blooms of known varieties were not at all similar to those grown by themselves, and it may be worth while to point out that excessive "dressing," which alters ordinary incurving florets into reflexed ones, is certainly open to criticism as being misleading, even though the dressed bloom is thought to possess better effect.

Owing to the sale of the Aquarium building, this will be the last of the autumn fêtes there, and we hope that the building selected for future shows will be free from many of the evils and inconveniences that now exist.

The arrangements for the show were largely in the hands of Mr. RICHARD DEAN, Secretary, who remains as energetic as ever.

OPEN CLASSES.

CUT BLOOMS EXHIBITED IN VASES.

A large proportion of the cut blooms exhibited in the open classes were displayed in vases, and as usual, these were much more effective than those shown on the flat boards. Even the more stiff looking incurved flowers are more attractive when displayed upon stems clothed with foliage, and all the other sections, including the tiny Pompons as well as the largest Japanese, lose half their beauty when shown in the old manner.

Twelve vases of specimen Japanese blooms.—The largest class for blooms in vases was one for sixty specimens arranged in twelve vases, five in each. The vases were about 14 inches high, and arranged on tables 24 inches high. Each stem had to have at least 6 inches of stem above the vase. Mr. F. S. VALLIS, Bromham Fruit Company, Bromham, Chippenham, who won last year, was again awarded the 1st prize of £10. His varieties were those following:—Madame Herrewege, a pure white Japanese, exceedingly deep; M. Chenon de Leché, Australie, Mrs. Mease, W. R. Church, one of the finest Australian seedlings introduced by Mr. Wells, colour rich crimson; Calvat, 1899; Le Grand Dragon, Madame Carnot, purest white, very good; Mrs Barkley, very large, heavy blooms, shown perfectly reflexed; M. L. Remy, Edwin Molyneux, and Mrs. J. Lewis. 2nd, Mr. Chas. Beckett, gr. to Sir W. G. PEARCE, Bart., Chilton Lodge, Hungerford, whose selection of varieties we also append:—Madame Paolo Radælli, Loveliness, Mrs. J. Bryant, Miss Alice Byron, in beautiful condition; Sensation, Madame Carnot, Mrs. Coombes, Mrs. Mease, Godfrey's Pride, Mrs. H. Weeks, J. R Upton, and Mrs. Barkley. 3rd, Mr. W. C. Meredith, gr. to GEO. WILDER, Esq., Stansted Park, Emsworth, Sussex; and 4th, Mr. GEO. WILLIAMS, Manor House Nursery, Cardiff.

One Vase of six Japanese blooms (white).—The 1st prize in this class was awarded to Mr. W. Mease, gr. to A. TATE, Esq., Downside, Leatherhead. His variety was Princess Alice de Monaco, an excellent white Japanese incurved; 2nd, Mr. W. C. MEREDITH, with Madame Gustave Henry; and 3rd, Mr. J. Sandford, gr. to G. W. WRIGHT INGLE, Esq, Wood House, North Finchley, with the same variety.

One Vase of Six Blooms (yellow).—Mr. H. PERKINS won this class with fine blooms of Viscountess Cranbourne; 2nd, Mr. Chas. Edwards, gr. to H W. PEAL, Esq, Oakhurst, Ealing, with R. Hooper Pearson; 3rd, Mr. C. Lane, gr to E. H COLES, Esq., Burntwood, Caterham, with Mrs. W. Mease.

One Vase of Six Blooms, any colour except White or Yellow.—Mr. A. Jefferies, gr. to JOHN BALFOUR, Esq, Moor Hall, Harlow, won 1st prize, with splendid specimens of Mrs. Barkley; 2nd, Mr. H. PERKINS, with Australie; 3rd, Mr. Geo. Hewitt, gr. to CHAS. E. GREEN, Esq, Theydon Grove, Epping, with W. R. Church in very good condition; 4th, Mr. W. L. BASTIN, with Mrs. Geo. Mileham.

One Vase of Hairy Varieties.—The best exhibit of these in not fewer than two varieties was from Mr. HENRY LOVE, Melville Terrace, Sandown, Isle of Wight, he had four blooms of Princess Henry, and one each of Louis Bœhmer, and a seedling. Mr. S. Foster, gr. to R. NIVISON, Esq., Tenterden Hall, Hendon, who was the only other exhibitor, showed the varieties Mrs. Dr. Ward, Hairy Wonder, and King of the Hirsutes.

Six Vases of Incurved Blooms, distinct, five Blooms of each.—The best exhibit of incurveds in vases was by Mr. W. HIGGS, of Fetcham Park Gardens, Leatherhead, who won 1st prize also for blooms upon boards, and who was equally successful last year. His varieties were C. H. Curtis, Nellie Southam, Lady Isabel, Hanwell Glory, Mrs. R. C Kingston, and Robert Petfield; 2nd, Mr. G. J. Hunt, gr. to PANTIA RALLI, Esq., Ashtead Park, Epsom: he had fine blooms of Duchess of Fife, Mrs. C. H. Egan, and Chrysanthemum Bruant; 3rd, Mr W. L. Bastin, gr. to Sir ALEX. HENDERSON, Bart., M.P., Buscot Park, Faringdon.

Six varieties of Chrysanthemums, such as are grown for Market.—These were shown in vases containing six sprays of a variety, not disbudded. Mr. J. R. Allan, gr. to C. A. MORRIS-FIELD, Esq., Ashurst Park, Tunbridge Wells. The varieties were well known decorative sorts, as Mrs. Wingfield, Mychett Beauty, Soleil d'Octobre, Crimson Pride, Rotaire Glory, and Mons. E. Freeman. 2nd, Mr. H. Parr, gr. to F. A. BEVAN, Esq., Trent Park, Barnet. Ambrose Thomas, a very pretty bright red variety was included in this exhibit; also Albert Chausson, another good one.

Nine Pompons, distinct.—Six blooms of each variety were shown in vases, and looked very pretty. Mr. T. Caryer, gr. to A. G. MEISSNER, Esq., Aldenholme, Weybridge, won 1st prize, and we append the varieties, all of which are very attractive and neat:—Comte de Morny, crimson; Osiris, silvery-lilac; La Vogue, yellow; Arbre de Noël, bronze colour and light red, exquisite; Black Douglas, crimson; Mdlle Marthe, white; Pygmalion, brownish-red; William Westlake, yellow; and the beautiful and best known Mdlle. Elise Dordan. 2nd, Mr. A. Page, gr. to G. W. KILNER, Esq, Ravenscroft, North Finchley. There were some very pretty varieties in this stand also; W. Kennedy, a glossy crimson self, is most effective. 3rd, Mr. Chas. Brown, gr. to R. HENTY, Esq, Langley House, Abbots Langley. There were six exhibits in this class.

Six varieties of Single Flowers.—These large-flowered single varieties are exceedingly decorative, and are deserving of wider cultivation. Mr. W. Aldridge, gr. to G. LACEY, Esq., Springfield House, Palmer's Green, was 1st, and showed the following fine varieties:—Elsie Neville, reddish-crimson; Edith, terra-cotta colour, with white ring around disc; Rose Pink, a charming variety, also possessing a white ring around disc; Earlswood Glory, pure white; Ami Fallan, and Felix, two excellent crimson flowers. 2nd, Mr. A. Dear, gr. to W. JORDAN, Esq, Hill House, Palmer's Green. Other varieties were noticed here, including Purity, white; Crown Jewel, yellow and bronze colour; and Mrs. Walton, rich rose colour, with distinct white circle around disc. 3rd, Mr. W. C. PAGRAM.

Six Anemone Pompons, distinct.—A pretty exhibit of these was made by Mr. CHAS. BROWN; and another was from J. Barrance, gr. to G. W. TAYLOR, Esq., Hadley Bourne, Barnet.

Large-flowered Japanese Anemone.—The best exhibit of twelve large-flowered Japanese Anemone blooms was from Mr. CHAS. BROWN. The flowers were shown in two vases, and some of them were not perfectly developed.

Twelve large-flowered Anemone blooms, shown in vases by Mr. CHAS. BROWN, had a good effect.

BLOOMS SHOWN ON BOARDS.

INCURVED VARIETIES.

Thirty six Blooms, distinct.—In this class was offered one of the Society's Holmes Memorial Challenge Cups and a sum of £10 as 1st prize, there being three other prizes of proportionate amounts. The 1st prize was won by Mr. W. Higgs, gr. to J. B. HANKEY, Esq., Fetcham Park, Leatherhead, with a collection of fine blooms in point of size, but they required rather more time to "finish." The varieties were:—*Back row:* Mrs. C. Crooks, Frank Hammond, Major Bonaffon, Mrs. R. C. Kingston, George Lock, Topaze Orientale (good), The King, a new, broad-floreted, silver and purple coloured bloom, lacking finish, but very promising; Lady Isabel, Robert Petfield, Ernest Cannell, Duchess of Fife, and Nellie Southam. *Centre row:* Ialene, J. Agate, Miss Doris Cox, George Haigh, Cecil Cutts, of similar build to C. H. Curtis, but rather looser, and of much deeper yellow colour; W. Higgs (not better than Japanese incurved as shown), Comtesse d'Estoile, Countess of Warwick, Lord Alcester, Madame Verneuil, Madame Durandal, and Chas. Curtis. *Front row:* Edith Hughes, Miss Violet Foster, Globe d'Or, John Lambert, Pearl Palace, Golden Empress, Hanwell Glory, Louisa Giles, Creole, King of the Yellows, Empress of India, and Dome d'Or. The 2nd prize collection was a very good one in comparison, and came from Mr. G. J. Hunt, gr. to PANTIA RALLI, Esq., Ashtead Park, Epsom. He had excellent blooms of Ialene, Robert Petfield, Violet Tomlin, Hanwell Glory, and Duchess of Fife. 3rd, Mr. W. Mease, gr. to A. TATE, Esq., Downside, Leatherhead, King of the Yellows was excellent in colour here, but like most of the others, was rather too fat in build.

Twelve blooms distinct.—In the class for a dozen distinct varieties, Mr. W. HIGGS again beat his competitors. The following was his selection: Topaze Orientale, Ernest Cannell, Mme. Durandal, Duchess of Fife; *Centre row:* Lady Isabel, Nellie Southam, J. Agate, Ialene; *Front row:* Golden Empress, Globe d'Or, Robert Petfield, and C. H. Curtis. The next collection in order of merit was one from Mr. W. L. Bastin, gr. to Sir ALEX. HENDERSON, Bt., M.P., Buscot Park, Faringdon, Berks. The colours were noticeably good in this exhibit, Louisa Giles being brightest. 3rd, Mr. C. Lane, gr. to E. H. COLES, Esq, Burntwood, Caterham, Surrey. There were six other exhibitors, the 4th prize being gained by Mr. Chas. Edwards, gr. to H. W. PEEL, Esq, Oakhurst, Ealing.

Six blooms of one variety.—The premier award in this class was given to six beautiful blooms of the lemon coloured variety Topaze Orientale, shown by Mr. WM. MEASE; 2nd, Mr. Chas. Crooks, gr. to the Dowager Lady HINDLIP, Hadzor, Droitwich, who had very large blooms of Duchess of Fife; 3rd, Mr. J. Sandford, gr. to G. W. WRIGHT-INGLE, Esq, Wood House, North Finchley, who had the variety C. H. Curtis.

JAPANESE BLOOMS.

Forty-eight blooms, distinct.—It was a magnificent exhibit that gained the 1st prize of the Holmes Memorial Cup and £10 for Mr. F. S. VALLIS, Bromham Fruit Co., Bromham, Chippenham. The collection was remarkable for size and colour, and as the Japanese varieties are so constantly changing, we will mention the selection of forty-eight blooms, with which Mr WALLIS won. *Back row:* Madame Waldeck-Rousseau, a new one of very large size, colour reddish-crimson, with pale buff reverse; Kimberley, a very large rich yellow bloom; Mrs. J. Bryant, rich purple; Madame Herrewege, Phœbus, Mrs. R. Darby, Madame P. Rivoire, Mrs B. Wild, Marq. V. Venosta, Paolo Radælli, Matthew Smith, Australie, F. S. Vallis, Chas. Longley, J. Lewis, and E. Molyneux. *Centre row:* Mrs. Barkley, Duchess of Northumberland, Mrs. T. W. Pockett, Lily Mountford, W. R. Church (over-dressed), Madame Carnot, Mrs. G. Golder, a seedling, Le Grand Dragon, T. Carrington, Mrs. Greenfield, H. Weeks, Nellie Bean, Miss A. Byron, a seedling, and G. J. Warren. *Front row:* Duchess of Sutherland, Mrs. F. W. Vallis, Mrs. G. Mileham, Mrs. H. Weeks, Bessie Godfrey, Pride of Madford, M Chenon de Leché, Mrs. E. Hummell, Mrs. Mease,

Sensation, Nellie Pockett, H. Stowe, Ethel Fitzroy, Mrs. Coombes, M. L. Rémy, and Calvat's 1899.

Mr. R. Kenyon, gr. to A. F. HILLS, Esq., Monkhams, Woodford Green, showed grandly for 2nd place, and his blooms were of such good quality generally, it is difficult to name the best; those following, however, added much to the exhibit from the point of view of colour or refinement:—Lily Mountford, Lord Ludlow, Edith Tabor, E. Molyneux, Chas Longley, Rev. W. Wilks, Mrs. Barkley, Sensation, Lord Alverstone, M. Chenon de Lechè, Mrs. G. Mileham, W. R. Church, and Mrs. J. Bryant. 3rd, Mr. A. Jefferies, gr. to JNO. BALFOUR, Esq., Moor Hall, Harlow, Essex; and 4th, Mr. WM. MEASE. There were seven exhibits in this large class, and consequently 336 blooms.

Twenty-four Blooms, distinct.—This is always one of the most popular classes, and there were this season as many as eleven competitors. The 1st prize was won by Mr. H. Perkins, gr. to the Hon. W. F. D. SMITH, M.P., Greenlands, Henley-on-Thames. Many of Mr. Perkins' own seedlings were included in the following varieties:—*Back row:* Henry Perkins, Edith Smith, General Buller, Australie, George Lawrence, Mrs. J. Bryant, Graphic, and W. H. Whitehouse. *Centre row:* Mrs. J. C. Neville, Vicar of Leatherhead. Mrs. J. Cleeve, Earl of Harrowby, Lady M. Conyers, Edith Tabor, Mrs. Mileham, and Lady Acland. *Front row:* Mary Perkins, W. R. Church, Countess of Harrowby, Vicountess Cranbourne, Mrs. R. Darby, excellent colour; Countess of Arran, Mrs. J. W. Barks, and Madame Herrewege. Mr. W. MEASE was 2nd in this class, and showed a very good collection. Particularly good were George Lawrence, Mrs. J. Bryant, Mrs. Barkley, Mafeking Hero, M. Louis Rémy, and Le Grand Dragon. 3rd, Mr. Alex. Smith, gr. to the LADY SUPERIOR, The Convent, Roehampton, S.W., who had very pretty blooms, remarkable for their bright colours; 4th, Mr. A. JEFFERIES.

Twelve blooms, distinct.—There were fourteen exhibits in the class calling for a dozen blooms in as many varieties. The 1st prize was gained by an exhibit from Mr. H. PERKINS, the pride of whose stand was a magnificently coloured bloom of Henry Perkins, a Japanese with reflexed florets of very bright red colour on yellow ground. The rest of the varieties were Australie, George Lawrence, Lady Mary Conyers, Mrs. J. Cleeve, Mrs. W. Popham, Mrs. J. Bryant, Phœbus, Mrs. J. C. Neville, W. R. Church, Madame Herrewege, and Mrs. Mileham. 2nd, Mr. Geo. Hewitt, gr. to CHAS. E. GREEN, Esq., Heydon Grove, Epping. He had a very richly coloured bloom of W. R. Church, and large specimens of Mrs. Barkley, and other choice varieties. 3rd, Mr. W. L. Bastin, gr. to Sir ALEX. HENDERSON, Bart., Buscot Park, Faringdon, Berks; and 4th, Mr. G. Impey, gr. to H. MANSFIELD, Esq., The Lodge, Abbots Road, New Barnet.

Mr. Godfrey's Novelties.—There were several exhibits in a class for new seedlings distributed from Exmouth during 1901 and 1902. Mr. R. Kenyon, gr. to A. F. HILLS, Esq., won 1st prize, and showed the varieties Mafeking Hero, Sensation, Bessie Godfrey, Loveliness, Masterpiece, H. E. Hayman, Godfrey's Pride, and Kimberley, all of which had rich colour. 2nd, Mr. Chas. Ritchings, gr. to the Misses BAIRD, St. James, West Malvern, who had Queen Alexandra, in very good condition, and Exmouth Crimson, exceedingly rich in colour. Indeed, the amount of rich colour in these collections of blooms was quite extraordinary.

Twelve Large-flowered Reflexed Blooms.—The old-fashioned reflexed blooms were not shown numerously. In Class 21, for twelve large-flowered blooms in not fewer than nine varieties, there were two exhibits. Mr. T. Caryer, gr. to A. G. MEISSNER, Esq., Aldenholme, Weybridge, had 1st prize, and showed Dorothy Sibson, King of Crimsons, Cloth of Gold, Mrs. Forsyth, Cullingfordi, Pink Christine, Golden Christine, Miss Lunn, Dorothy Gibson, and Phidias. 2nd, Mr. Chas. Brown, gr. to R. HENTY, Esq., Langley House, Abbots Langley.

Large flowered Anemone Blooms, Japanese included.—Mr. CHAS. BROWN won 1st prize in this class. Some of the blooms needed a little more time in which to develop the disc-florets, or "cushion." His varieties included the old Delaware, also Madame Lawton, the richly-coloured Descartes, Owen's Perfection, Souvenir de Norgatis, Duchess of Westminster, Zanada, Gladys Spaulding, M. Chas. Lebosceqz, Junan, De Chalonais, Sir Walter Raleigh, M. Jules Benedict, Lady Margaret, a fine white variety; Le Deuil, John Bunyan, M. Pankoucke, Mabel Miller, J. Sharpe, jun.; Margaret Tolevill, W. G. Drover, Gluck, and Madame Charles. 2nd, Mr. A. Page, gr. to G. W. KITNER, Esq., Ravenscroft, North Finchley.

COMPETITION OF SOCIETIES.

The class arranged for affiliated and other societies to exhibit in was not so successful this year as usual. There was only one entry of forty-eight blooms, distinct, half of them incurveds, and half Japanese. This was from the Epsom and District Chrysanthemum Society, and the blooms were contributed by Mr. W. HIGGS and Mr. G. J. HUNT. As these two exhibitors are so well known for their successes, it goes without saying that the collection was a good one, but it would have given more satisfaction had there been competition, as there has been for years past. The Epsom and District Society was awarded the 1st prize of the Challenge Trophy and £10.

DISPLAY OF CHRYSANTHEMUMS.

The President's prize of £15 was again offered in a class for a floral display of Chrysanthemums and suitable foliage plants in pots, with the addition of cut blooms and any appropriate cut foliage. The collections have to include examples of not fewer than four sections of Chrysanthemums, but they may be exhibited as plants or cut blooms. The displays were arranged round the two permanent fountains, and they are a means of making these features exceedingly attractive. The exhibits this year from Mr. NORMAN DAVIES, Framfield Nurseries, Sussex; and Mr. R. C. PULLING, Monkhams Nursery, Woodford Green, around the fountain nearest to the clock, presented a very tasteful picture of harmonised colours, both in flower and leaf, and they attracted much attention. Mr. NORMAN DAVIES won 1st prize for an exhibit very much in advance of the others. He draped the fountain tastefully, and managed to include much variety amongst the blooms so used, but the exceptional merit of Mr. DAVIES' exhibit was in the great blooms of new and choice varieties, that seemed to be growing from amongst the ferns and other foliage plants in which they were interspersed. No one cultivates the Madame Carnot and its varieties with such success as does Mr. DAVIES, and he had on this occasion most beautiful blooms of Madame Carnot, Mrs. W. Mease, M. Calvat's new one Mme. Paolo Radælli, an incurved Japanese; Miss Elsie Miller, a new rosy-purple Japanese; Madame Waldeck-Rousseau (Calvat), bright crimson, very good; General Hutton, Duchess of Sutherland, Calvat's Sun, yellow; George Lawrence, Miss Mildred Ware, a reddish-pink, reflexed Japanese; Mrs. White Popham, and Mrs. J. C. Neville. 2nd, Mr. R. C. PULLING: and 3rd, Mr. Jas. Loch, gr. to the Hon. Mr. Justice SWINFEN EADY, Oatlands Lodge, Weybridge.

SPECIMEN PLANTS.

There appears to be a growing disinclination on the part of cultivators to spend their time in training their Chrysanthemums into all sorts of unnatural shapes called "specimens," and consequently few exhibits of these were forthcoming.

In Class 2, for six bush specimens of large flowering varieties, the 1st prize was awarded to Mr. W. Noble, gr. to H. T. PITT, Esq., Rosslyn, Stamford Hill, who chose for this more natural method the varieties Phœbus, Mrs. Coombes, Lady Hanham, and Viviand Morel. The plants were about 5 feet high, and bore a dozen or so blooms, but were not of superlative merit.

Four trained specimens of any variety, were best from Mr. E. Easy, gr. to F. BISHOP, Esq., The Grange, Highbury New Park, his varieties being President Nonin, Col. W. B. Smith, and Commandant Blussett. The same exhibitor, when showing four standard-trained specimens of large-flowered varieties, had Cleopatra, Eva Knowles, W. Tricker, and Miss Watson.

Mr. F. Gilbert, gr. to M. BUTTANSHAW, Esq, Kendal House, Blackheath, had the best standard Pompons in Pygmalion, Arbre de Noël, W. Westlake, and Touissant Marrisot. The best specimen of any Japanese variety was one of Miss Watson, lemon coloured, from Mr. EASY.

A curiosity amongst these specimen plants was a honorary exhibit from Mr. Gilks, gr. to F. W. FREIR, Esq., Bylock Hall, Ponder's End, of a plant of William Westlake, trained in a manner to represent a crown.

FLORAL DECORATIONS.

Mr. J. T. Simpson and some friends, offered special prizes in a class for a table of bouquets, wreaths, and other designs upon a space of 9 feet by 6 feet, with a view to obtaining an educational display of decorative designs. The 1st prize was awarded to a very imposing display from Mr. L. H. CALCUT, Stoke Newington, the conspicuous feature of which was a large crown overhung by a bell-like shade, and enclosed in a kind of open casket with four white pillars 4 feet or more high. The crown was yellow on a pink base, and the bell pure white. The pillars were relieved with bouquets of a light description fastened to them, and there were many other bouquets, sprays, &c. 2nd, Messrs. MASH & SON, 105, Brixton Hill, S.W.; 3rd, Messrs. HARWOOD BROS.

Mr. J. French, gr. to MRS. BARCLAY, Ambleside, Wimbledon Park, showed three prettily-arranged epergnes, the colours used being shades of yellow and bronze; and Miss C. B. COLE, The Vineyards, Feltham, was 2nd.

Class 33 was for two distinct individual designs of Chrysanthemum blooms, with a view to bringing forward any novel arrangement. Messrs. HARWOOD BROS., The Nurseries, Balham, won 1st prize, and exhibited a harp, the frame of which was composed of bronze-coloured blooms, relieved at the corners and base with pink blooms and suitable foliage. Their other design was a ladder composed of small yellow blooms, a few white ones being added for relief.

The best exhibit of two vases of Pompons or Anemone Pompons was from Mr. W. C. Pagram, gr. to J. COURTENAY, Esq., The Whim, Weybridge, who with a few grasses and other foliage, arranged his blooms very prettily. 2nd, Mr. W. Grundy, gr. to S. BROWNFIELD, Esq., Orchard Leigh, Rotherhithe, S.E., with the stiffest looking bouquets possible, almost all if not every bloom having been wired.

Mr. H. PERKINS obtained 1st prize for a vase of six blooms of a Japanese variety.

A class exclusively for ladies, for exhibits of a basket of Chrysanthemum blooms, arranged as if for a table, was won by Miss C. B. COLE, who had a very bright exhibit; 2nd, Mrs. FANNIE S. BREWSTER, 12, St. Peter's, Canterbury.

FRUIT.

In the classes for fruit, the best exhibits came from the cultivators whose names follow:—Three bunches of white Grapes, Mr. Jas. Lock, gr. to the Hon. Mr. Justice Swinfen-Eady, Weybridge; 2nd, Mr. W. Lintott, gr. to Walpole Greenwell, Esq., Marden Park, Surrey. Black Grapes, Mr. A. Wadds, gr. to Sir Weetman Pearson, Paddockhurst; 2nd, Mr. W. Taylor, gr. to C. Bayer, Esq., Forest Hill, S.E., both exhibitors showing the variety Black Alicante. Muscat of Alexandria, Mr. W. Chuck, gr. to H. Thelluson, Esq., Broadsworth Hall, Doncaster; 2nd, Mr. W. Taylor. Six dishes of dessert Apples, 1st, Mr. A. J. Thomas, Rodmersham who had Blue Pearmain, Allington Pippin, Gascoigne's Scarlet, James Grieve, Cox's Orange Pippin, and St. Christopher; 2nd, Mr. W. T. Stowers, gr. to G. H. Dean, Esq., Harold Wood, Sittingbourne; there were thirteen entries. Six dishes of culinary Apples, 1st, Mr. A. J. Thomas; 2nd, Mr. Stowers (twelve entries); and six dishes of ripe dessert Pears, 1st, G. E. Robjohn, gr. to the Hon. R. P. Nevill, Barling Manor, Maidstone, who had Emile d'Heyst, Durondeau, Doyenné du Comice, Beurré Hardy, Pitmaston Duchess, and Beurré Diel; 2nd, Mr. John Webb, gr. to H. Padwick, Esq., Manor House, Horsham.

VEGETABLES.

In the class for a collection of vegetables, in which prizes were offered by Messrs. WEBB & SON, the principal winners were: 1st, Mr. E. Beckett, gr. to Lord ALDENHAM; 2nd, Mr. A. Basile, gr. to the Rev. O. L. POWELL, Woburn Park, Weybridge.

In the classes for vegetables, in which prizes were offered by Mr. ROBT. SYDENHAM, the 1st prizewinners were as follows:—For Cauliflowers, Mr. A. G. Gentle, gr. to Mrs. Denison, Little Gaddesden, Berkhamsted; Celery, Mr. A. G. Gentle; Drumhead Savoys, Mr. A. G. Gentle; Red Cabbages, Mr. A. G. Gentle; Carrots, Mr. A. G. Gentle; Beetroot, Mr. Silas Cole, gr. to Earl Spencer, Althorp Park, Northampton; Parsnips, Mr. Wm. Leith, gr. to Col. O. R. Middleton, The Chase, Ross, Herefordshire; Brussels Sprouts, Mr. Silas Cole; Leeks, Mr. Chas. Brown; Onions, Mr. Wm. Leith; White Turnips, Mr. A. G. Gentle; Tomatos, Mr. A. Basile; and Potatos, Mr. A. G. Gentle. Mr. A. G. Gentle won the Challenge Cup for the third time, and it is now his property. He won 52 points out of a possible 65.

NON-COMPETITIVE EXHIBITS.

Mr. W. J. GODFREY, of the Exmouth Nurseries, Devon, exhibited a grand lot of cut blooms of Chrysanthemums, including amongst others the seedlings distributed by him last season, nearly all of which were shown as large, richly coloured flowers (Gold Medal).

Messrs. H. CANNELL & SONS, Swanley, Kent, made the bright exhibit usual to them at this show. In addition to the Chrysanthemums, most of which are described on p. 342, the zonal Pelargoniums, Cannas,

and Begonias Gloire de Lorraine and Turnford Hall, were very showy (Large Gold Medal).

Mr. H. J. JONES, Ryecroft Nurseries, Hither Green, Lewisham, staged his display, as usual, under the organ gallery, and was deservedly awarded a Large Gold Medal. Most of the varieties, described in our last issue, p. 321, were represented in good condition, and prominence was given to a pretty new Japanese called Mrs. Mildred Ware.

Messrs. HOBBIES, Ltd., Dereham, had a large display of Chrysanthemum blooms, and some cut flowers of zonal Pelargoniums (Gold Medal).

Messrs. J. HILL & Sons, Lower Edmonton, exhibited a fine collection of Ferns (Silver-gilt Medal); Mr. J. SPINK, Summit Road Nursery, near Walthamstow, a group of Chrysanthemum plants (Silver-gilt Medal); Messrs. J. PEED & SONS, Norwood Road Nurseries, London, a group of Chrysanthemum plants (Bronze Medal); Mr. HENRY LOVE, Melville Terrace, Sandown, Isle of Wight, new varieties of Chrysanthemums; Mr. J. W. COLE, some blooms of Japanese incurved, Mr. E. A. Peak, white; Messrs. B. S. WILLIAMS & SONS, Upper Holloway, London, N., some choice foliage and flowering plants, including Orchids (Silver-gilt Medal); Mr. JOHN RUSSELL, Richmond Nurseries, Surrey, a group of plants, including Eurya latifolia variegata, Aucuba vera, and Pyracantha Lelandi; Mr. W. SEWARD, Hanwell, new Chrysanthemums; Mr. VINCENT SLADE, Staplegrove Nurseries, Taunton, cut flowers of zonal Pelargoniums; Messrs. W. CUTBUSH & SONS, Highgate Nurseries, London, N, a group of foliage and flowering plants, including excellent winter flowering Carnations and retarded Lilies. Astilbe palmata, Rhododendron mollis, and other species (Gold Medal). Messrs. H. CANNELL & SONS, a collection of 190 varieties of Apples and Pears (Silver-gilt Medal). Messrs. DANIELS BROTHERS, Norwich, a collection of vegetables (Silver-gilt Medal). Messrs. GEO. BOYES & Co., Aylestone Nurseries, Leicester, plants and flowers of winter-flowering Carnations (Silver Medal). Messrs. W. & J. BROWN, Stamford and Peterborough, a collection of fruits (Silver gilt Medal). Messrs. T. ROCHFORD & SONS, Turnford Hall Nurseries, Broxbourne, Herts, a group of "retarded" plants now in full flower, including Lily of the Valley, Rhododendron mollis, Lilium longiflorum, L. speciosum rubrum, L. auratum, Astilbe palmata, &c. The bright, but rich crimson, H. T. Rose Liberty was shown as small plants in full bloom, also the Begonia Gloire de Lorraine var., Turnford Hall (Gold Medal). Mr. J. RUSSELL, Richmond, had in addition to exhibit already mentioned, a collection of Apples and Pears, and Messrs. JOHN LAING & SONS, Forest Hill Nurseries, a collection also (Silver Medal). Messrs. I. HOUSE & SON, Westbury-on-Trym, showed blooms of varieties of Violets.

Amongst exhibitors of garden sundries, manures, or buildings were Mr. Jos. Arnold, Bedford; Messrs. W. Wood & Son, Wood Green, London, N.; Messrs. Pearce & Co., horticultural builders, Holloway Road, London; Mr. J. George, 14, Redgrave Road, Putney; Messrs. D. Dowel & Son, Ravenscourt Avenue, Hammersmith; The Ichthemic Guano Company, Ipswich; Mr. J. Williams, 4a, Oxford Road, Ealing, W.; Mr. H. Tyler, Mushroom Spawn Maker, The Mead, Child's Hill, Kilburn; Messrs. Hodgkins & Co., West Didsbury, Manchester (skeletonised leaves); and The Permanent Nitrate Committee.

[Our notes upon the exhibits from Amateurs are unavoidably held over until next week.]

PORTSMOUTH CHRYSANTHEMUM.

OCTOBER 29.—In the Town Hall, the annual show of Chrysanthemums, Fruit, and Vegetables was held. The entries were fewer than usual owing to the backward season. Cut blooms formed the most attractive part of the show. The principal class was that for forty-eight Japanese, in not fewer than twenty-four varieties. Mr. C. Penfold, gr. to Sir F. FITZWYGRAM, Leigh Park, Havant, secured the leading Award with medium-sized blooms of popular varieties. Mr. J. AGATE, Brockhampton Nurseries, Havant, 2nd.

In the class for twenty-four Japanese, Mr. J. LOVE, Park Road, Cowes, easily won 1st place with really good blooms, if not large. Mr. W. G. ADAMS, Clarendon Road, Southsea, 2nd. For twelve Japanese, Mr. J. TOSH ROBB, Woolston, was 1st.

Incurved varieties, were few in number. Mr. J. AGATE was 1st for thirty-six, and Mr. ADAMS for twenty-four blooms, both staging moderately well. Mr. J. LOVE was 1st for six blooms, Bouquets, and table decorations, formed distinct and interesting features. In the former class Miss PEEL was awarded the 1st prize unanimously; and Mrs. B. JEFFERIES took lead in the dinner-table class, with a neat arrangement of Chrysanthemums and foliage, and Mrs. W. H. BERRY was a close 2nd.

FARINGDON CHRYSANTHEMUM.

OCTOBER 30.—This annual show was held on the above date, in the Corn Exchange. The show was fixed a week earlier than usual, to avoid clashing with other exhibitions, and the season being about three weeks late, blooms were scarce. There was a falling off in numbers staged, although some good specimens were on view.

Sir A. HENDERSON, Bart., Buscot Park (gr., Mr. W. Bastin), was 1st with twenty-four Japanese blooms, including several good specimens: 1st for twelve incurved; and he was awarded the prize for the best bloom in the show, with a large well-formed specimen of Mrs. G. Mileham. Mr. J. P. LOCKWOOD, was awarded 1st in the open class for twelve Japanese blooms, a very nice lot; and 1st in the amateur class for six blooms. He also took the Ryecroft Silver Medal for nine blooms with foliage in vases. Mr. R. WHITEHEAD, Beckett, Shrivenham, took 2nd for twelve blooms. Mr. J. B. WEEDON, gr., Barcote, showed the only group of plants, a good one for the season, for which he had 1st prize. There were three groups arranged for effect, and were much admired: Sir A. HENDERSON being 1st; Mr. R. WHITEHEAD 2nd; and Mr. J. B. WEEDON highly commended. Sir A. HENDERSON was 1st for table pot plants and Begonia Gloire de Lorraine in pots; Mr. R. WHITEHEAD was 2nd for table plants. Sir A. HENDERSON was 1st for Grapes; and His Honour Judge BACON (gr., Mr. Lodge), 2nd. Mr. J. B. WEEDON and Mr. R. WHITEHEAD, showed some good vegetables, and were 1st and 2nd respectively. Mr. C. O. WALTER, had 1st for six dishes of splendid Apples; and Mr. J. B. WEEDON was 1st with Pears.

WOOLWICH, PLUMSTEAD, &c, HORTICULTURAL.

OCTOBER 30, 31.—A very attractive display of cut blooms and plants of Chrysanthemum, fruit and vegetables, was held in the spacious Drill Hall, Beresford Street, on the above date, and much interest was aroused from the fact that Lady Charles Beresford, the wife of the member for that borough, was to open the show at 3 P.M. Lord CHARLES BERESFORD was also present, and made a characteristic speech, to the great delight of the audience.

Classes were provided for groups of plants, but they were by no means numerous, and but of medium quality. There were some table plants, and nice specimens of Begonia Gloire de Lorraine were shown in the class for six winter-flowering Begonias.

The leading class for cut blooms was for twenty-four Japanese, and very good collections were staged by Mr. R. Kenyon, gr. to A. F. HILLS, Esq., Monkham, Woodford, and Mr. J. Simon, gr. to W. R. MARON, Esq, Bexley, a very little dividing them. Mr. KENYON who was placed 1st, had fine examples of Lord Ludlow, Mrs. Barkley, Miss Alice Byron, a very fine bloom which was selected as the premier Japanese in the open classes; bronze Soleil d'Octobre; Madame Herrewege, a fine white sport from Australie; Pride of Madford, Mrs. T. W. Pockett, Lily Mountford, W. R. Church, &c. Mr. SIMON'S leading flowers were Lord Roberts, Lady Byron, J. R. Upton, Mrs. George Mileham, Mrs. Coombes, Marjorie, Loveliness, Lady Hanham, a brilliant bloom of Pride of Madford, &c.

There was a class for twenty-four blooms, twelve Japanese and twelve incurved, Mr. SIMON being the only exhibitor. He had good blooms of Japanese, and his incurved were commendable for the season, the best among them being Mrs. James Murray, selected as the best incurved in the show; Lady Isabel, Topaz Orientale, Duchess of Fife, Globe d'Or, Emile Nonin, &c.

Blooms of Japanese on long stems, arranged with foliage, made a pleasing feature; and there were classes for six blooms of one variety, while the blooms staged were pretty good, they comprised nothing deserving of special mention.

One of the most attractive features were vases of six specimen blooms, arranged with foliage. In the class for a pair, Mr. F. LANGE, nurseryman, Belvedere, was 1st, with excellent blooms well arranged. Mr. E. Russell, gr. to T. PIRIE, Esq., was 2nd, with twelve blooms shown in four vases three blooms in each. Mr. J. SIMON was a good 1st in a good competition.

Fruit was represented by Apples and Pears, sparingly shown; and by fairly good vegetables; and there were some pretty table decorations.

Of miscellaneous exhibits, Messrs. GEO. BUNYARD & Co., Maidstone, had a collection of Apples; Messrs. W. WELLS & Co., Earlswood Nurseries, had two stands of Japanese Chrysanthemums, which included good blooms of Madame Herrewege, Mrs. G. Mileham, Madame G. Henry, Mrs. T. W. Pockett, Miss A. Byron, Mrs. A. McKinley, Nellie Towers, Hon. Mrs. Tennant, H. E. Hayman, William Richardson, Godfrey's Masterpiece, &c. Mr. W. J. MINHINWICK, florist, Woolwich, had some attractive floral decorations, anchor, cross, heart, &c.

ANSWERS TO CORRESPONDENTS.

*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

BASIC SLAG: *J. B.* On land deficient in phosphoric acid, this substance may be used at the rate of 4 oz. per square yard. Two dressings per annum are sufficient on ordinary kinds of soil; it may be applied in the autumn and spring. It may be mixed with nitrate of soda at time of application: quantity 5 cwt. per acre.

BOOKS: *Manual. The Book of Orchids*, by W. H. White. Published by J. Lane, Bodley Head, London. *Orchids: their Culture and Management*, by W. Watson. Published by Upcott Gill, 170, Strand, W.C. *Orchid Manual*, by B. S. Williams. Published at the Victoria Nurseries, Upper Holloway. We do not know the prices.—*W. A. M. All about Rubber and Guttapercha*, 3rd edition. Compiled by J. Ferguson. Published in London by John Haddon & Co., and by Kegan Paul, Trench, Trübner & Co.

BUSHES AND STANDARD TREES IN ORCHARD UNDER GRASS: *Pinkie.* Until the trees come into full bearing, keep a circle 7 to 10 feet in diameter round each tree free of herbage, and afford manure or manure-water as may appear necessary. Remember, the feeding roots are not found just round the stem, but at from 4 to 10 feet away from it.

CARNATIONS: *W. C.* There is no fungus disease apparent in the leaves. Will you send the roots, that they may be examined for eelworms?

CATERPILLAR: *William George Gough.* The immature larva of a species of Geometer Moth. *R.N.*

CAULIFLOWER AND CABBAGE PLANTS CLUB-ROOTED: *Zigzag.* The roots are malformed by the agency of a slime-mould or fungus (Plasmodiophora brassicæ). The disease commonly attacks the seedlings in the seed-bed. Crop-rotation, usually found to do good with other fungous diseases, is not a sure preventive; still, it should be adopted, as the fungus attacks Shepherd's Purse and other weeds. The chief safeguard against Club-root fungus is the burning of all diseased and refuse plants. The use of lime at the rate of 75 bushels per acre has been recommended as a preventive. The small insects found in the soil, which had escaped from the box, were probably centipedes (Julus). These are not usually harmful, seeing that they feed mostly on decaying vegetation.

CORRECTION: *Re* Messrs. J. Backhouse & Son (Ltd.) Nursery Note in our last issue. *For* Cottal *read* Cattal; and *for* Bow Bridge *read* Boro' Bridge.

CUCUMBERS: *H. J. H.* Yes, the spot disease, of which so much has been written lately.

CURRANT GALLS: *M. R. K.* You cannot have been a very diligent reader, or you would have known that the Currant-bud mite has been repeatedly figured and described in these columns and elsewhere. Unfortunately, we cannot recommend you to do anything but burn all the affected shoots.

DAFFODIL-FLY: *W. G. G.* The insect is a fly, Merodon, very common in bulbous plants. Often figured and described in the *Gardeners' Chronicle.*

INSECT: *A. G.* The grub of the smaller cockchafer, very destructive to roots. Starlings and rooks are very fond of them.

INSECTS ON BARK: *S. R. W.* The larvæ from Pear and Apple bark are those of the Fruit-bark Moth, Tortrix Weberiana. Rub off all

loose bark, and dress the trees with paraffin emulsion of the following proportions:—Soap, ½lb.; paraffin, 2 gallons; soft-water, 10 gallons. Dissolve the soap by boiling in one gallon of water, add the paraffin, and churn with syringe; then add the remaining 9 gallons, and again thoroughly churn. Apply with a brush. About the middle of May also give the trunks and main branches of the trees a good dressing of lime-wash; this will in a great measure prevent the moths laying their eggs upon the bark. *R. N.*

KEW MICROMETER: *Enquirer.* If you refer to the figure, or still better procure the instrument itself, you will find it resembles a pair of scissors with two pointed blades, with a moveable bar attached to one of the handles, and a pointer to the other. The bar is graduated into millimèters on one side, and into twentieths of an inch on the other. Place the points of the blades, one on either side of the object to be measured, and read off on the horizontal bar the precise measurement in millimèters, or in twentieths-of-an-inch.

LANDSCAPE PLANS: *G. R.* You should endeavour, by attending night schools, mechanics' institutes, or polytechnics, to acquire a knowledge of geometry and land measurement, drawing to scale, laying on colour, &c. Books you should obtain are *The Art and Craft of Garden Making*, by Thomas Mawson, published by B. T. Batsford, 94, High Holborn, London, W.C.; *Landscape Gardening*, by H. E. Milner, published by Simpkin, Marshall, Hamilton & Co., Stationer's Hall Court.

MULCHING FRUIT TREES: *Pinkie.* Necessary the first year after planting, and during very dry, warm summers, in order, in the first case, to keep out frost, and in the second to conserve the moisture in the soil. Given a deeply-trenched soil of average quality, and affording it occasional dressings of manure, it is better for the trees and bushes if the roots descend into the soil, whereas mulches coax them to the surface, in which case the trees are apt to suffer in hot seasons if water be not applied. In clayey soils and heavy loams, summer mulching is injurious to growth by keeping the air out of such soils, thus rendering it colder than it otherwise would be, and unduly wet. A rule cannot be laid down for all sorts and conditions of soil and climate.

NAMES OF FRUITS, ETC.: *We are desirous to oblige our correspondents as far as we can, but the task is becoming too costly and too time-consuming for us to continue it without some restrictions. Correspondents should observe the rule that* **not more than six varieties** *be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. The fruits should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.*—*J. W.* 1, Beurré Diel; 2, Chaumontelle; 3, Brown Beurré; 4, Conseiller de la Cour; 5, Beurré d'Anjou; 6, Doyenné d'Alençon.—*H. O.* 1, Bedfordshire Foundling; 2, Castle Major; 3, American Mother; 4, Summer Pearmain; 5, Crimson Quoining; 6, Stirling Castle.—*F. C.* 1, Gratioli of Jersey; 2, Marie Louise d'Uccle; 3, Beurré Diel; 4, Marie Guise; 5, General Todleben; 6, not recognised (deformed).—*W. U.* 1, Pitmaston Duchess; 2, Gascoigne's Scarlet; 3, Duchess of Oldenburg; 4, Lord Derby; 5, Cellini; 6, not recognised.—*Reynolds.* 1, Alfriston; 2, Tyler's Kernel; 3, Ross Nonpareil.—*G. Jennings.* 1, Gratioli of Jersey; 2, Beurré Hardy.—*J. F.* 1, Northern Dumpling; 2, Brabant Bellefleur; 3, Nelson's Codlin; 4, Calville des Femmes; 5, Flower of Kent; 6, Jubilee.—*G. S.* 1, Winter Nonsuch; 2, Benoni; 3, Colonel Vaughan; 4, Gross Fenouillet; 5, Wellington; 6, Egremont Russet.—*Moffatt.* 1, Cellini; 2, Fearn's Pippin; 3, Ribston Pippin; 4, Louise Bonne of Jersey; 5, Beurré Hardy.—*G. Beer.* Gloria Mundi.—*J. A. Smith.* 1, Summer Orange; 2, not recognised (too small); 3, Holland Pippin; 4, Braddick's Nonpareil; 5, Wyken Pippin; 6, Sturmer Pippin.—*J. C.* 1, Durondeau; 2, Beurré Diel; 3, Triomphe de Jodoigne.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. Kemp.* 1, Euonymus japonicus variegata; 2, Aster Novæ Angliæ rubra; 3, A. N. A. (type); 4, A. diffusus horizontalis.—*C. H.* Your specimens are so poor we cannot name them with certainty: 1, Hæmanthus albiflos; 2, allied to Crassula; 3, a Labiate; 4, Tillandsia species; 5, Hydrangea paniculata; 6, possibly a Weigela.—*C. G.* Juniperus virginiana.—*J. W. R., Westonbirt.* 1, Juniperus communis; 2, probably Juniperus rigida (Japan).—*H. M. Hurst.* There seems nothing against the specimens being Impatiens Sultani; but from the material sent it is impossible to make a more definite statement.—*H. J. C., Alresford.* 1, Codiæum (Croton) elegantissimum; 2, Codiæum angustifolium; 3, Codiæum not in character; 4, Codiæum Weissmannianum; 5, Dracæna ornata; 6, Trachelium cœruleum.—*Z. Y. X.* 1, Euonymus latifolius argenteus; 2, Begonia Ingrami; 3, Abutilon Savitzii; 4, Begonia incarnata; 5, Begonia argyrostigma elegantissima; 6, Davallia hirta cristata.—*O. H.* 1, Codiæum cornutum; 2, Codiæum variegatum; 3, Codiæum Queen Victoria; 4, Polystichum angulare proliferum; 5, Adiantum hispidulum; 6, Adiantum Edgworthi.—*Ferns.* 1, Ansellia africana; 2, Oncidium flexuosum; 3, Zygopetalum intermedium; 4, Oncidium excavatum; 5, Maxillaria picta; 6, Nephrolepis Duffii.—*P. Wolter.* No letter received. We believe the flower sent to be a form of Lælio-Cattleya × elegans.—*C. Jefferies.* Leycesteria formosa.—*Viola.* 1, Retinospora squarrosa; 2, Thuya occidentalis; 5, Cupressus Lawsoniana var.; 6, Cupressus Lawsoniana. 3 and 4 next week.—"*Alfa Beta.*" Pinus muricata, California. You will find a fine illustration of it in the *Gardeners' Chronicle* for Jan. 12, 1884, figs 7, 8, and 9.—*W. F. & Co.* 1, one of the many varieties of Thuya (Biota) orientalis; 2, Thuya gigantea, alias Lobbi. You know how much these plants vary from seed.—*T. T. B.* 1, Leycesteria formosa; 2, Retinospora squarrosa, a form of Cupressus pisifera; 3, Juniperus japonica; 4, Andromeda calyculata; 5, Quercus Ilex.—*W. F.* What miserable scraps you send; 1, a Fern; 2, Saxifraga sarmentosa; 3, a Carex or Sedge of some sort; 4, Berberis buxifolia.—*C. L. W.* 1, Scrophularia nodosa, harmless; 2, is most probably Mercurialis perennis, but much "drawn" and out of character. We do not know if it is injurious to sheep, but we should look upon it with grave suspicion, as it has a bad character as a poisonous plant. Cattle it is said, will not touch it.—*E. V. B.* Cobœa scandens.

NOTICE TO QUIT SERVICE, &c.: *Justice.* Unless the man living in the lodge has committed some grievous offence, he is entitled, as he says, to one month's notice. But he might be agreeable to take a money payment in lieu thereof. The reply to the other enquiry is, the usual hour for leaving work—4.30, 5, and 6 P.M., as the case may be.

PACKING GRAPES: *Pinkie.* Provided the bunches are bedded in wood-wool, covered with tissue-paper, and fastened with string to the sides of the baskets or boxes, and they lie together compactly, no other packing is needed beyond a sheet of paper laid on the top. Cross-handled baskets are better than boxes, which get pitched about without regard to which is the top or which is the bottom. Grapes in such baskets, provided they are kept dry, travel for hundreds of miles without loss or injury.

PALM: *H. G., Canterbury.* The roots are infested with a fungus, which you have mistaken for mealy-bug. The plants are pot-bound, and should be afforded more rooting-space, using bulb, i.e., deep pots. We do not know that the fungus is doing any positive harm.

PEACH AND VINE BORDER: *J. B.* Examine the state of the soil, for after ten years' cropping it will probably have got into an unwholesome condition and the drainage out of order. Without an examination it is impossible for us to say what should be done. Send us some samples of roots and of the soil at the surface and the bottom of the border, and we will let you know what appears to us to be necessary.

PEAR-LEAVES: *J. M.* The work of the Pear-mite, Phytoptus pyri.

PEARS IN SEASON IN OCTOBER AND NOVEMBER: *A. F.* Beurré Diel, good on the Quince, or as a wall tree on the Pear stock—richly flavoured; B. Bosc requires a wall or warm situation. B. Hardy, large fruit, good grower, rich full flavour; B. Superfin, large and handsome fruit, with a melting, delicate rich flavour; Conseiller de la Cour bears freely fruit of rich flavour.

PTERIS FERN: *H. G., Canterbury.* There is no disease in the fronds; the injury is due to something in the cultivation of the plants, but what this is we are unable to indicate.

QUICKLIME: *J. B.* Spread the lime in quantity sufficient for the day's work, and keep the remainder in a dry place. If you trench the land, mix some of the lime with each spit; and if it is simply dug-in one spit deep, mix it with the soil as well as you can. Lime is not lost to the soil; it is simply carried down to lower depths by rain and snow, and out of the reach of the plants. "Little and often" is a good motto; there is no real necessity to bury lime deeply, unless it be in trenching in a lot of crude manure or refuse. To apply decayed manure and lime at the same time in ordinary digging is a wasteful practice; better dig in the lime early in the autumn, and dress with manure in early spring, digging it in. Powdered lime may be scratched into the soil at almost any season, but such dressings should be quite light. A heavy winter dressing, followed by digging or ploughing, should not be less than 80 bushels per acre. Some soils contain scarcely any lime, and may be dressed with it yearly in smaller quantities than this.

ROSE-LEAVES: *G. R.* We find no trace of fungus or insect. A strong insecticide would produce similar effects.

VANDA CŒRULEA: *Manual.* Plants such as those you indicate would cost 10s. each. All depends on the good condition of the leaves, and their healthy appearance, and on the strength of the stems; this last being an important guide as to the strength of the spikes which may be expected. Price varies according to size and condition—from 5s. to 2 guineas or more.

VINES WITH STICKY FOLIAGE: *Pinkie.* It may be due to the exudations of aphides, "Honeydew." Kill these insects, and the deposit disappears, or it may be washed off the leaves.

WORMS ON CROQUET LAWN: *L. T.* Stir a quantity of quicklime in a big tub, it does not matter how much is put in, as the water into which it is put will take up only a certain quantity. When it has got clear, apply it with a large watering-can fitted with a rose. The worms will come to the surface in a few hours, and can then be swept up and carried away. The lime-water will do no harm to the grasses; on the contrary, they will benefit from the application.

YOUNG VINES: *Pinkie.* Not much in advance of the natural season, namely, the end of the month of March, or early in the following month. Black Hamburgh, Foster's Seedling, Madresfield Court, the Frontignans, Golden Champion, the Sweetwater varieties, including Duke of Buccleuch, need twenty weeks from start to finish; Muscats various, Gros Colman and Alicante may be perfectly ripened in twenty-two to twenty-four weeks, but something depends on soil and locality; Grapes in sunny districts, and on well-drained warm loams, requiring rather less time.

COMMUNICATIONS RECEIVED.—W. A. D P.—L. C.—F. E.—W. G. G.—F. V. V.—Grigor Roy—A. E.—H. C. W.—S. W. F.—C. T. D.—T. T. B.—W. C. W.—H. J. E.—E. M. W. M.—B. D.—L.—E. J. L. L. Farmer—E. C. W. Hovell—J. G. W.—W. H. Y.—Onlooker—J. J. W. J. H. S.—F. J. F.—C. E.—C. C.—Sir E. F.—G. S.—H. E. W.—S. W. F.—P.—J. H. G.—Jno. Pentland—W. Simpson—Liverpool—H. J. C.—G. G.—S. H.—F. P.—C. P.—H. M.—A. B.—J. H.—G. D.

(*For Markets and Weather, see p. x.*)

THE
Gardeners' Chronicle

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View of the Town Garden, Princes Street, Edinburgh (Supplement)

SLUGS AND SNAILS.

ANY information bearing on the relationship existing between plants and those enemies of our vegetation, the slugs and snails, should be of great value and interest, both to the gardener and the naturalist; for such knowledge would necessarily enable the gardener to have a greater command over the interests and well-being of the plants committed to his care, and it must afford to the naturalist one of the most fascinating of biological studies.

The observations and experiments of Prof. Stahl, the German botanist, have thrown a new light upon the whole subject, and although they are far from being complete, yet, so far as they go, they clearly indicate what a very close and intimate relationship there really does exist between the plants and these molluscan creatures. The following general account is taken from his book, *Pflanzen und Schnecken* (Plants and Snails).

In the first place, snails* may be divided, fro this special point of view, into two class s: the specialists, and the omnivorous forms. The former feed chiefly on fungi, and are represented by the three naked snails, Limax maximus, L. cereus, and Arion subfuscus. The latter prefer sweet parts of plants, such as fruits and roots, especially Carrots, but in the absence of their favourite articles of diet, will attack a great variety of plants, hence their destructiveness in a garden.

The existence in the midst of the vegetable world of such flagrant and wholesale devourers of plant-tissues as the snails, has given rise on the part of the plants, during the course of ages, to very numerous adaptations for protection against their enemies. We are familiar with many of these protective characters of plants which are related to the attacks of the higher animals, such as ruminants and rodents; we are less familiar with those connected with the inroads of these lowly molluscs. Stahl has arranged them under the following headings:

I.—CHEMICAL PROTECTION.

1. *Tannin.*—Certain chemical substances are contained in the soft tissues of many plants, which, although other parallel functions are not denied them, appear to chiefly serve the purpose of warding off the attacks of snails. Of these, tannin plays a very important part. It is amongst the common waste products which occur in plant tissues, and may frequently be detected by mere external observation, owing to the red colour which it imparts to these organs, which contain it in considerable quantity. It is especially common in the Leguminosæ. Fresh Clover leaves were placed before the common garden snail (Helix hortensis), and were not eaten for several days. Leaves of the same plant were treated with alcohol, so as to remove every soluble substance, including the tannin, and after being dried in the sun, so as to remove every trace of the alcohol, they were soaked in water; when placed before the snails after this treatment the leaves were in a short time devoured. Plants of Trifolium pratense, T. alpestre, T. medium, T. rubens, Medicago sativa, Coronilla varia, C. montana, when placed before the large land-snail (Helix pomatia), were but little damaged, whereas stems of the Carrot and Nettle, offered them at the same time, were greedily eaten. Many Rosaceæ, such as Poterium sanguisorba, Fragaria vesca and others, Saxifrages, Sedum, Sempervivum, the leaves of most of our native trees and shrubs, and the Ferns, are, thanks to the tannin-salts they contain, rejected or but little interfered with by snails. Not a few tannin-bearing leaves, even after extraction by alcohol, were avoided by hungry snails, this being due to their hardness, for young leaves of the same plants, such as Poplar, Rose, Saxifraga crassifolia, were under such conditions, at once devoured. The common Carrot, on account of its sugar and its freedom from tannin, is greedily sought after by snails; one of Stahl's experiments consisted in killing fragments of this root by dipping them in boiling water, and after drying them in the oven, soaking them in solutions of tannin, those pieces which had been treated with 1 per cent. solution, when placed before the common small garden slug (Limax agrestis), remained practically untouched. As showing how sensitive slugs and snails are to this substance (tannin), drops of a solution of tannin of the strength of 1 per 1000 were sprinkled on the body of the animal, when its discomfort at once became apparent by the amount of slime it secreted, and by its rapid disappearance from the scene of the operation, while the same treatment with water offered it but very slight annoyance.

Tannin is likewise very common in water-plants, serving as a protection against the water-snails, Limnæa, Paludina, and Planorbis. "Extracted" leaves of Potamogeton species, Vallisneria, Hydrocharis, Trapa, and Hippuris, were freely eaten by these creatures, while the fresh leaves were barely touched.

In the fresh-water Green Algæ, Mesocarpus, Spirogyra, Vaucheria, Conferva, &c., and also in certain Brown Algæ, as in the hairs occurring between the sporangia of Asperococcus, and the outermost cells of the peripheral thallus-threads of the Mesogloeaceæ, tannin has been observed to occur, and is in all probability a means of protection against water-animals.

2. *Protective Colouring.* — Stahl suggests that many of the red colours which, as Wigand has shown, are the frequent concomitants of tannin in vegetable tissues, as well as spottings and other variegations on leaves, such as those of Arum maculatum, Orchis maculata, O. latifolia, Phyteuma nigra, Polygonum persicarioides, Sempervivum tectorum, &c., may possess the function of acting as warning-signals to animals, such as snails; for many of them possess protective substances in their tissues. Experiments to prove this are, however, as yet wanting.

3. *Plants possessing Acid Sap (binoxalate of Potash).*—Rumex acetosa, R. acetosella, and allied forms, Oxalis and Begonia species, are much disliked by the molluscs; the cause of this lying in the presence of the above-named acid salt in their tissues. Though tannin is also present in some of their tissues, it is certain, from the following experiments, that protection is chiefly afforded by the oxalic acid present. Pieces of Carrot, of which some were soaked in pure water, others in variously concentrated solutions of the binoxalate of potash, were placed before each kind of mollusc (Arion empiricorum, A. hortensis, Limax agrestis, and Helix hortensis); the former were first devoured, the latter gradually in turn, according to the strength of the solution in which they had been soaked, those pieces from the 1 per cent. solution, even after several days had elapsed, showing scarcely a trace of having been touched. Solutions of this salt of 1 per 1000 strength, if sprinkled on the body of the snail, have the power of strongly irritating the creature, and causing it to remove to other quarters.

4. *Hairs possessing an Acid Excretion.*—In Leguminosæ and Onagraceæ, especially the latter, an adequate guard against the attacks of snails is afforded by certain unicellular, cylindric, rounded hairs, which secrete a powerful acid, which at once turns blue litmus-paper red. The hairs are very elastic, and even if pressed by the hand, are not destroyed, as are those of Primula sinensis, but continue to secrete drop after drop of the liquid. These hairs are found on the stem and leaves of Œnothera tetraptera, Œ. grandiflora, Œ. fruticosa, Œ. Drummondi, Gaura parviflora, Gauridium molle, Epilobium hirsutum, E. abyssinicum, and Circæa lutetiana.

* Throughout the article I shall, for the sake of brevity, use this word frequently as including both the naked and the shell-bearing forms.

De Candolle describes acid-secreting hairs as occurring also in Cicer arietinum, the excretion consisting here of a mixture of oxalic, acetic, and malic acids. Portions of this plant, from which the acid excretion had been completely washed off, were at once eaten by snails; other portions not so treated were left untouched.

5. *Ethereal Oils.*—The presence of a layer of ethereal oil around any organ of a plant has had a physical explanation given it by Professor Tyndall, viz., that it serves as a barrier both to the outgoing and incoming rays of heat, thus acting as a protection against either over-cooling or over-heating of the subjacent tissues. This may or may not be so; no experiment has demonstrated it. However, it must be, as Stahl points out, of quite secondary importance compared with the *rôle* which ethereal oils play as a protective agency against the inroads of snails. Fresh leaves of Ruta graveolens offered to Helix hortensis and H. pomatia were by the former not at all, by the latter barely, touched; while "extracted" leaves were quickly destroyed. The same thing happened with leaves of Acorus calamus. The secretory hairs of Geranium Robertianum are very obnoxious to snails; certain of these hairs secrete between the cuticle and the rest of the wall of their terminal cell a liquid, which is the cause of the peculiar odour of the plant; if some of this secretion be placed immediately in the way of a travelling snail on a glass plate, the animal avoids it entirely, and shows itself extremely sensitive to contact therewith. This shows that it is not merely the long, stiff hairs of the plant which ward off the snails, but chiefly the secretion. Similarly, when streaks of the secretion from the leaves of Mentha piperita and Dictamnus Fraxinella were placed in the path of the snails, they drew in their horns, and changed their direction of travel before reaching the streaks; hence, probably, their sense of smell warned them of the presence of the oil. The internal secretory cells, such as those of Hypericum and the Orange, are, perhaps, less efficacious than the external ones, as some amount of destruction of the tissues is necessary before they are reached.

6. *Bitter Substances.*—These are very characteristic of the Gentianaceæ, and occur chiefly in the younger leaves; in late autumn they are apparently no longer efficacious against snail attacks. Young shoots of Gentiana lutea, G. cruciata, G. asclepiadea, and G. acaulis, when offered to hungry individuals of the large Helix pomatia, were found uninjured after three days; and a young leaf of Menyanthes trifoliata showed only a few traces of having been gnawed. For the same reason, Polygala amara is avoided by snails; but "extracted" leaves of Menyanthes and Gentiana lutea were at once devoured. As neither of these plants contain tannin, it is practically certain that their immunity is due to the presence of the bitter principle. Streaks of liquid containing the bitter principle of Carduus benedictus, laid on a glass surface, were sufficient to divert the course of crawling snails.

7. *Oily Bodies of Liverworts.*—These apparently defenceless organisms are, nevertheless, usually immune from the attacks of animals, owing, as it seems from Stahl's interesting experiments, to the presence of the hitherto problematical oil-bodies in the thallus of these plants, as well as perhaps to other chemical substances which give it a strong and peculiar taste; and it is a remarkable fact that those forms which are able rapidly to reproduce themselves as, e.g., by means of Gemmæ, such as Marchantia and Lunularia, are less efficiently protected than others. However, in almost all cases, "extracted" thalli were demolished within a short time. The common slug, Limax agrestis, which is specially fond of sweet tissues, would not, however, touch the "extracted" thalli until after these had been dipped in a sugary solution, when they were at once eaten. *W. C. Worsdell.*

(To be continued.)

NEW OR NOTEWORTHY PLANTS.

MESEMBRYANTHEMUM RACEMOSUM, *N. E. Brown (n. sp.).*

This novelty belongs to that group of the genus in which the outer stamens are destitute of anthers, and converted into staminodes intermediate in character between the filaments of the stamens and the petals, sometimes more resembling the former, sometimes the latter. In the present species they are very numerous, and all bent inwards to the centre, where the inner ones meet and completely conceal the fertile stamens, which are beneath them, with their anthers curved down towards the stigmas. From which structural features it would appear that this species is usually, if not always, self-fertilised, for in the majority of the flowers examined there was no trace of an opening by which an insect could get access to the stamens; in two flowers, however, a minute pore was present in the centre of the mass, where the proboscis of an insect could be inserted or a minute insect, such as a thrip might crawl through. There is, of course, the possibility that the staminodes may expand at night so as to permit of the ingress of insects, but this I have had no opportunity of observing. When the flowers have once expanded, they never close again, but after several days fade and wither in an expanded condition; and I believe M. inclaudens (which is structurally similar, and belongs to the same group), behaves in the same way; perhaps, as the anthers are effectually protected from wet by the staminodes, the plant finds no necessity for closing its flowers, as the majority of the species of this very large genus do. The nearest allies of M. racemosum are M. asperum, Haw., and M. compressum, Haw., from both of which it differs in having racemose sessile flowers. It is a native of South Africa, and is now (October) flowering at Kew.

Plant 1 to 1½ ft. high; branches ascending or somewhat spreading, usually alternate, woody, to 1 lin. thick, ashy-grey, two-edged on the younger parts, and there marked with reddish or green linear immersed glands, glabrous; internodes ¼ to 1¼ in. long. Leaves 6 to 11 lin. long, ⅜ to 1 lin. broad, ¾ to 1½ lin. thick, obtusely trigonous, with the keel directed to one side, not median, somewhat obtuse, with a minute recurving apiculus, minutely tuberculate with slightly prominent pellucid glands, otherwise glabrous, green, not at all glaucous, more or less tinged with red at the tips; primary leaves spreading or ascending; leaves of the axillary tufts (which are usually produced from one axil only) slightly incurved-erect. Flowers three to five to a stem, along which they are racemosely scattered, being solitary from one axil of each of the upper pairs of leaves, except the terminal pair, which bears two flowers, subsessile, invested at the base with two to three closely imbricating pairs of leafy bracts, which are shorter and much stouter than the leaves, connate at the base, with membranous margins, minutely tuberculate, 3 to 4 lin. long, and 2 lin. thick from the face to the acute keel, which is directed to one side. Sepals five, short and stout, ovoid-trigonous, acute, two to three of them with membranous gland-dotted margins, minutely tuberculate. Corolla 1 to 1⅛ inch in diameter, deep rose-pink; petals in about three series, all widely spreading; the outer 4½ to 5½ lin. long, linear-spathulate, obtuse, entire; the inner 1½ to 2 lin. long, linear-subulate, acute. Staminodes very numerous, densely connivent to the centre, and completely concealing the stamens, filiform-subulate, very acute and recurved at the tips; pale yellow. Stamens comparatively few; filaments very slender, white, the apical part curved downwards towards the stigmas; anthers white. Stigmas five, minute, ¼ to ⅜ lin. long, ovate, acuminate. *N. E. Brown.*

RICHARDIA SPRENGERI, *Comes.**

This is a fine and distinct species, introduced from the Transvaal by Mr. Sprenger, of Naples, in 1898, and first flowered with him in the summer of 1900. It is one of the yellow-flowered group, rivalling R. Pentlandi and R. Elliotiana in colour, and has equally large if not larger spathes, differing from those and all other species in the form of its leaves and the broader, funnel-shaped, or somewhat trumpet-mouthed spathes, which, when flattened out, are broader than those of any other species. A short account of its introduction and method of cultivation, from the pen of Mr. Sprenger, was published in the *Gardeners' Chronicle* for this year, vol. xxxi, p. 349; but no description of the plant was there given. We are now able to supply that deficiency from specimens received from Mr. Sprenger. In these the petiole of the leaf is 6 to 7 ins. long, smooth, without bristles at the base; the blade is 8 to 9 ins. long, 3 to 3½ ins. broad, oblong, acute at the apex, truncate (not hastate or cordate) at the base, green, marked with semi-transparent white spots, and sometimes variegated as well with white. Peduncle 12 to 14 ins. long, smooth, glabrous. Spathe broadly funnel-shaped, bright, clear yellow, varying, according to Mr. Sprenger, to sulphur-yellow or white, or sometimes spotted; when flattened out, it measures 4 to 4¼ ins. long, exclusive of the ½ to ¾ in. long subulate cusp, 5 to 5¼ ins. in breadth, and is somewhat transversely rhomboid-ovate or rhomboid orbicular in outline. Spadix shortly stipitate, not half as long as the spathe. Ovaries without neuter organs mingled with them, somewhat four-angled, with sinuous sides as viewed from above, flattened at the top; stigma sessile. *N. E. Brown.*

ORCHID NOTES AND GLEANINGS.

DICTIONNAIRE ICONOGRAPHIQUE DES ORCHIDÉES (No. 49, September, 1902).

The present issue of M. Cogniaux's illustrations and descriptions of Orchids include:—

CŒLOGYNE LACTEA (*Rchb. f.*).—A Burmese species, of close affinity to C. flaccida. Flowers in pendulous racemes, cream coloured, with a yellow crest, and brown lines on the side lobes of the lip.

CYPRIPEDIUM × ASHBURTONIÆ VAR. BARTETI (barbatum × insigne Chantini).—Flowers whitish marked with purple. Dorsal sepal white, with green base and purple dotted lines.

DENDROBIUM JERDONIANUM (*Wight*).—A very pretty species, from the Nilgiri Hills. Flowers orange coloured, with red markings on the lip. The plant illustrated was flowered by Sir Trevor Lawrence, Bart. (gr., Mr. W. H. White).

EPIDENDRUM ARACHNOGLOSSUM CANDIDUM (*Rchb. f.*).—A white form of the well-known rose-coloured Colombian species.

EPIDENDRUM ENDRESII (*Rchb. f.*).—A charming, compact growing species from Costa Rica with white flowers,

* *Richardia Sprengeri*, Comes, in *Atti Inst. Incorazz.* Napoli, Ser. 5, Vol. 3, No. 7.

marked with purple on the lip, and which in the hands of Messrs. Jas. Veitch & Sons, has been used in the production of a fine race of hybrids.

LÆLIO-CATTLEYA × HIGHBURYENSIS VAR. FOURNIERI L. CINNABARINA × C. LAWRENCIANA).—Sepals orange, coloured, lip and petals rosy-purple. A form of the hybrid originally raised in the Right Hon. J. Chamberlain's garden, Birmingham.

LÆLIO CATTLEYA × LUCASIANA (C. LABIATA FLAMMEA) × L. TENEBROSA).—A fine hybrid first shown by the raiser, M. Chas. Maron in January, 1901. Flowers almost entirely purplish-rose.

LÆLIO-CATTLEYA × TRUFFAUTIANA (*Maron.*) — A very fine hybrid with purple tinted orange sepals and petals, and rich claret-purple lip. A form of it has been shown as L.-C. × luminosa. It was obtained between Cattleya Dowiana aurea and Lælia tenebrosa.

MAXILLARIA VENUSTA.—A well known species with large white, fragrant flowers, with yellow labellum.

MILTONIA ENDRESII. — The Costa Rica ally of M. vexillaria. Flowers white, with reddish markings around the yellow crest. Often called Odontoglossum Warscewiczii.

ORNITHIDIUM DENSUM.—Flowers small, white, with lilac lip, borne on short stalks a dozen or so together.

ORNITHIDIUM FRAGRANS (*Rolfe*).—A scandent plant producing white flowers with yellow labellum. It has been shown as Camaridium ochroleucum and Maxillaria ochroleuca.

RESTREPIA ANTENNIFERA. — Flowers yellowish, spotted and striped with purple.

The accompanying *Chronique Orchidéenne* gives various notes of interest, and a further list of hybrids and new Orchids, together with an Index, which will be appreciated by those who consult this very useful publication.

CHRYSANTHEMUM NOTES.

DOVER HOUSE, ROEHAMPTON.

One of the finest collections of Chrysanthemums in a private garden in the suburbs of London is that of Mr. J. Pierpont Morgan's, at Dover House, Roehampton. For years past Chrysanthemums have been cultivated there as a specialty, and upwards of 1,500 plants have been propagated from year to year. Most of these are treated for producing large exhibition flowers, although it is seldom they have been spared to be sent to any competitive show. At present the greater number of them are arranged in a large, lean-to vinery, and a similar Peach-house; others decorate the new corridor that connects the three span-roofed houses erected last year, and the remaining plants are contained in other houses. There are several hundreds of plants of most sections, including single-flowered varieties, cultivated as bushes for affording blooms for use in forms of decoration in which the larger flowers are less suitable.

Those grown for larger flowers are stronger this season than they have ever been, and many of the blooms of established and new varieties are of the largest dimensions and finest development. All the best of last season's novelties are included in the collection, but below we give the names of those that appeared in best condition on November 3, whether well known or new varieties: Earl of Arran, yellow Japanese, deep flower, the drooping florets turning back at extreme tips; Mrs. J. C. Neville, a large, white Japanese, 10 inches across; the well-known Phœbus; Mrs. Geo. Mileham, pale purple or rosy-lilac, the younger florets displaying the silvery reverse; Mrs. Barkley, of similar type, but possessing rather broader florets; Lionel Humphrey, reddish-crimson, with gold reverse showing in centre, and gold coloured tips to the florets, rather tall habit, flowers 11 inches from tip to tip of florets; Miss Elsie Fulton, an excellent white Japanese incurved, having broad florets, a deeply built flower of extra size, and as Mr. J. F. McLeod describes it, one of the freest to bloom in the collection, every bud developing kindly and well; Mrs. Greenfield, the new yellow variety recently distributed by Mr. Jones, and a companion or possible rival to Phœbus; Mme. Rosette, a self coloured reddish-crimson Japanese of moderate size, but valuable for its colour; Le Grand Dragon, a well known large flowered, bronzy-yellow coloured Japanese; Chas. Davis (some very fine flowers of this favourite sport from Viviand Morel); George Lawrence, a bronzy-yellow coloured Japanese, or reddish upon late buds, having extremely long florets, and making very large flowers; Queen Alexandra, Mrs. N. Molyneux, Godfrey's King, Mme. Von André, lemon-coloured Japanese, having broad florets, and possessing considerable refinement, but coming deeper in colour upon late buds; M. Chenon de Leché an excellent Australian seedling introduced by Mr. Wells four years ago; Miss E. Douglas, a deep, rather narrow, vinous-purple coloured Japanese; Edith Pilkington, Mrs. J. Bryant, Godfrey's Triumph, a very refined flower of rich red and gold colour, and worthy every attention, even if it should come less in size than others; Lord Ludlow, C. H. Curtis, Hanwell Glory, Mrs. J. Murray, and Mrs. R. C. Kingston.

In the other houses, there is a grand display of zonal Pelargoniums in full flower that coming fogs will be sure to injure, also an even brighter display of Salvia splendens grandiflora. Begonias Gloire de Lorraine and Turnford Hall fill one span-roofed house, and are just opening into abundance of bloom; and we also noticed Tideas, Nerines, Clerodendron fallax; a few Cypripediums and Cattleyas, all of which were in bloom; and these, in association with Codiæums, Cordylines, Palms, and other fine foliage plants, that Mr. McLeod cultivates so perfectly, make the houses exceedingly attractive. Neatness is, as usual, observable in every corner of this first-rate garden.

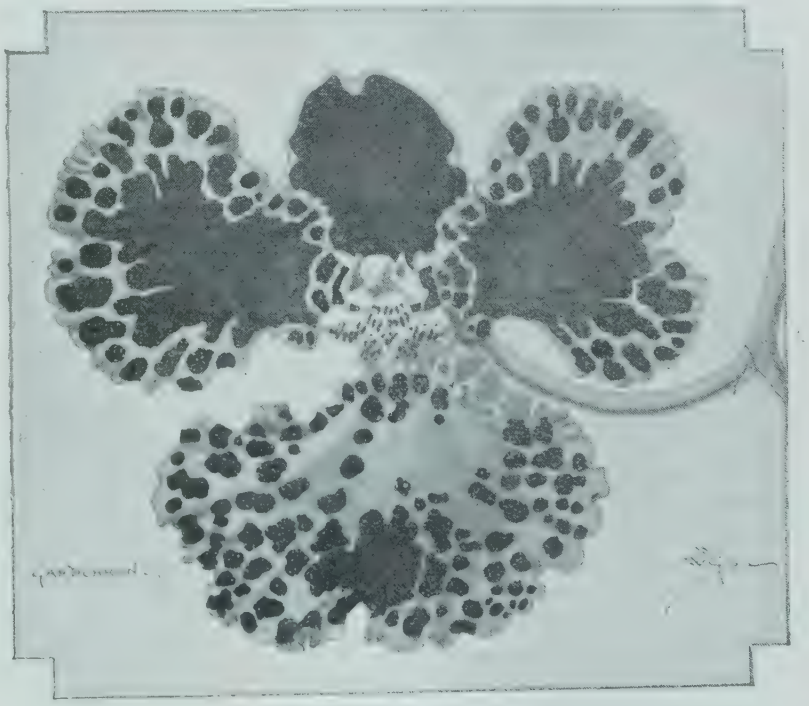

FIG. 119.—ONCIDIUM × MANTINI SUPERBUM.

ONCIDIUM × MANTINI SUPERBUM.

THE flower shown in fig. 119 represents the finest form of this showy natural hybrid yet exhibited. The flowers are bright yellow in colour, heavily blotched with a light shade of brown on the sepals and inner portions of the petals. The margins of the petals have some brown markings, and there is a semi-circular band of reddish-brown blotches on the handsome yellow lip. This beautiful variety was shown at a meeting of the Royal Horticultural Society, on Nov. 4, by Francis Wellesley, Esq., Westfield, Woking (gr., Mr. J. Gilbert), and the Orchid Committee recommended it an Award of Merit.

FORESTRY.

SPONTANEOUS GROUPS OF SEEDLINGS.

WITH regard to Conifers, the only species that can be said to regenerate itself at all freely is the Scots Fir, and then only after clear felling, and under conditions which entirely remove the seedlings from the shade and raw humus of the parent trees. On Heather-covered ground, a few parent trees enable it to spread rapidly in all directions; but in ordinary woods and plantations, seedlings rarely survive or succeed after the first year or two. Sometimes one comes across an occasional Larch, Spruce, Weymouth Pine, Silver Fir, &c.; but such instances are few and far between, and inspire little confidence in their probable success on a large scale. In large, pure forests of these species, the last two would doubtless behave as well as any in this respect, but neither Larch nor Spruce exhibit any inclination to act in this country as they would in their native habitat, where they are not called upon to compete with various timber trees and forms of surface vegetation, which quickly choke and smother them. Their favourite seed-bed seems to be a mossy surface, such as is often met with on ground strewn with rocks and boulders, but rarely away from the mountain ranges which these trees delight in. Where rabbits exist so universally as they do in this country, however, it is difficult to know exactly what could or could not be done if suitable conditions were provided. On light, sandy soils, I believe the Weymouth Pine would freely reproduce itself under shade, and prove to be one of our most valuable introductions, but the inability of most Conifer seedlings to push their way through thick growth gives them little chance of surviving in those places where they are most likely to germinate.

The only success which natural regeneration is likely to attain in this country is with hardwoods, and then only with those which seed freely, and are not too particular about a seed-bed. Ash, Beech, Birch, Oak, Spanish and Horse-Chestnut, Sycamore, &c., are all that could be desired in this respect, and it is only a question of rabbits and other vermin which decide the presence or absence of a good crop after a seed year. Spanish Chestnut does not of course ripen its nuts very far north, and the eagerness with which it is

sought after by boys, squirrels, mice, &c., render its germination rather uncertain, but the others give little trouble under ordinary circumstances. In the case of the heavier seeds, such as Beech, Oak, and Chestnut, it is necessary to see that they get into the soil, and do not lie on the surface long after they fall, or birds and mice make away with the greater part before spring. This is the principal cause of seedlings not making their appearance after a seed-year, especially where pigeons and pheasants are numerous; but as the matter is one which receives little or no attention in this country, no steps are taken to do what is necessary.

The simplest and one of the most effective methods of working the seed into the ground is that of cutting a proportion of the parent trees early in the season, and as soon after the fall of the seed as possible. The treading of the woodmen and the carting away of the timber and brushwood, does all that is necessary, while the time the work is going on, little chance is afforded the birds of picking up the seeds. On heavy ground, with little or no surface vegetation or humus, conditions which frequently prevail in coppice, this treading-in of the seed is absolutely necessary, and it is only when the coppice happens to be cut during or following a seed year that young Oaks come up in any numbers. Ash, Birch, and Sycamore, are able to dispense with this process better, being more easily covered, while Ash has plenty of time to get worked into the soil before the year of germination.

But, as already pointed out, the difficulty in English woods is not natural regeneration, but to keep the crop after you have got it. The first winter is the critical period. If it survives this, in all probability it will survive the next, unless conditions alter materially in the interval. Rabbits are the chief but not the only danger. Rank weeds are a fertile source of failure, for it is nothing uncommon to get a miscellaneous growth of one sort or another, 5 or 6 feet high, and thick enough to hold a tiger. In such cases, the only remedy, and even this does not always succeed, is to cut this growth as early and as frequently as is necessary, taking care to keep above the tops of the seedlings, and to clear it off them after cutting. In coppice, the underwood itself will quickly smother them, if not cut back after the second year, and this operation must be repeated more or less annually, until the plants are 6 or 8 feet high. The best results, as already said, without artificial aid, are attained with a grassy surface which protects but does not smother the seedlings. This cannot always be found in just that perfection which leads to success; but the chief point I wish to bring forward is, that when success does occur the final development of the group should not be entirely lost for want of a little attention. In some cases it is the removal of a few overhanging trees that is needed, in others a little timely pruning or thinning; while smearing the stems of the plants in severe weather would keep many alive which the rabbits would otherwise destroy. Natural regeneration can never take the place of planting entirely, it is true, but it seems a great pity that this enormous waste of seed should continue in our woods, when only a little forethought and the carrying out of a few simple details are needed to turn a great deal of it to account. It would be interesting to know how many of the Beech woods on the Chilterns are managed on the most elementary principles of natural regeneration, and yet these depend entirely on that process for their existence. For many reasons systematic attempts, such as are practised abroad, would probably end in failure here, and it is only by seizing each opportunity as it presents itself that much can be done, and that much is after all but a little.
A. C. Forbes.

RECENT EXPERIMENTS ON THE LARCH DISEASE.

In the September number of the *Board of Agriculture Journal*, Mr. G. Massee gives the result of some highly interesting experiments with the fungus of the Larch blister (Dasycypha Wilkommi). To practical foresters, these experiments are of considerable value, although they do not solve the great problem of stamping out the disease. Mr. Massee states the fungus is a genuine "wound parasite," and so far as his experiments have gone, all attempts to infect the Larch on sound or unbroken bark have given negative results. The wounds which permit spore infection to take place are grouped under four heads, as follows:—

1. Wounds caused by wind; or by snow resting on the branches.
2. Extrusion of sap caused by late frosts.
3. Nibbling of the cortex by insects, and more especially the punctures made by the Larch aphis (Chermes laricis).
4. Wounds made near the base of the stem when planting young trees.

The conclusions arrived at by Mr. Massee have long been regarded as facts by practical foresters, chiefly on the strength of general statements made by Hartig and other investigators. But it would be interesting to know what proportion of blisters or infected places can be fairly attributed to wounds coming under the first and fourth of the above heads.

Take wounds caused by wind and snow. Are wounds caused by these agencies common enough to be taken into account when considering the prevalence of Larch blister? My own impression is that they are not, and for the following reasons. In the first place, the Larch is deciduous, and is, as compared with evergreens, only capable of intercepting a small quantity of snow. In young plantations standing thickly on the ground, and with their crowns forming a continuous surface, snow does occasionally accumulate, and cause them to bend over in a body, but the strain in such cases is not of a nature to cause wounds on either stem or branch. Few trees are more elastic than the Larch, and it is able to bear both the weight of snow and the lateral pressure of wind, with as much impunity as the majority of trees. Compared with the snowfall of the Alps, that of this country must be insignificant, and it is only natural to suppose that a tree growing in an alpine habitat, would be prepared for the exigencies of the climate. In the South of England, at any rate, I believe both snow and wind may be left out of account so far as many badly diseased plantations are concerned, more especially in those under twenty years of age in which the disease is most virulent.

But it is in the case of wounds caused by artificial agencies that I feel compelled to disagree more strongly with Mr. Massee, or other exponents of this disease. I have noted a great many wounds caused by falling trees, dragging out timber, the biting of rabbits, careless pruning, &c., and in nearly all cases such wounds have healed or are healing unattacked by the fungus. In badly diseased trees, of course, such wounds will occasionally show fungus attack, but so far as my observations go, ordinary wounds on Larch branches or stems heal up in the ordinary way, and in most cases more rapidly than those on other trees. I am referring here, of course, to healthy trees (apart from the blisters that may be present), and not specimens which have become mere fungus-covered sticks. The abundant exudation of resin which accompanies an ordinary wound, and which covers the surface of the new growth, appears to protect the wound from infection, although it may be that the season at which the wound is made may affect the correctness of this statement. Enclosed with this note, the editor will find specimens which generally bear out this statement, and also a piece of apparently sound bark about ten years of age, bearing the fructification of D. Wilkommi.

Observation proves, as Mr. Massee states, that the majority of blisters originate in a small dead branch, which had been attacked by the fungus while still alive. From this branch, the disease communicates itself to the stem, and there gives rise to the canker or blister. If such branches could be removed before the disease has produced the usual result, a large percentage of stem blisters might be prevented; but it is doubtful whether this could be done carefully enough in practice to produce the desired result. On suitable Larch soils, careful attention during the first ten years after planting, so that all diseased plants might be weeded out as they appeared, would result in more healthy plantations than prevail now. On unsuitable soils the Larch acts in the same way as most trees, and nothing will induce it to grow as it should do to produce a healthy and profitable crop.

Mr. Massee's belief in the close connection between the Larch aphis and the disease is doubtless justified by facts; but it is just possible that the same causes which favour the aphis attack might also favour the fungoid attack, even if the aphides were absent. There are comparatively few soils and situations capable of bringing the Larch to its greatest perfection. On the other hand, there are still fewer soils and situations on which it has not been planted. Small wonder is it that failures occur; the wonder is that they do not occur oftener. *A. C. F.*

NURSERY NOTES.

MESSRS. T. RIVERS & SONS, SAWBRIDGEWORTH.

It is interesting to note at the present season the best keeping and the heaviest cropping varieties of Grapes. Black Alicante is very successfully grown here, the bunches, of 4 lb. weight, averaging from eighteen to twenty per rod, and excellently finished. The Vines of Gros Colman carry about the same number of bunches on a rod, but the weight of the bunches is less; they finish well. Mrs. Pince carried about sixteen bunches on a rod, and is this year better than usual. Lastly, Lady Downe's Seedling is better than this variety is usually observed. The Muscat of Alexandria comes up to the usual average, and is good for this year. Mrs. Pearson and Golden Queen, having about eighteen bunches on a rod, are at this date the best of the crops. These Grapes are grown for market, and the Vines are aged.

On the occasion of my visit to Sawbridgeworth early in the present month, I was pleased to observe a fine lot of pot Plum-trees loaded with fruits in the cold orchard-houses. The trees of the variety President were carrying a full crop of very large, fine coloured fruits. Primate was likewise heavily laden (it is a rather smaller Plum than the foregoing), and the variety Late Orange was remarkably good. These seedlings, raised by the firm, are well worth the attention of planters requiring very late Plums of good quality. These were the last of good keeping varieties, the others being either quite over or past their best.

After having secured four Gold Medals for the season of 1902, it was pleasant to see these prize trees, with fruit still on them in very fine condition. The best at the date of my visit were King of Tomkin's County, Peasgood's Nonsuch, Royal Jubilee, Annie Elizabeth, Emperor Alexander, Melon, Gascoigne's Scarlet, Blenheim Orange Pippin, Bismarck, Lady Henniker, Newton Wonder, Mannington Pearmain, Yorkshire Beauty, and Cox's Pomona. Great care must have been taken with these trees on their

several journeys for them to be now in such fine condition.

Taking the collection as a whole, I question if finer fruit has ever been seen. What, again, was of special interest was their high colour in so unfavourable a season. Not the least feature observed was the very promising appearance of the bearing-wood for the coming year. *S. C.*

were grafted in 1902 on the Black Alicante stock.

Black Morocco.—Leaves glabrous or nearly so on both surfaces; lobes shallow, not extending much beyond the margin, broad at the base, with intermediate, shallow, open sinuses, pointed at the base; marginal teeth straight-sided or deltoid, ovate-acute; berry ovoid conic, slightly tapering each end between them; unfortunately this characteristic which is very marked in the leaves before us, is not brought out in the illustration (fig. 120), though indications of it are seen to the right of the illustration. The marginal teeth are somewhat remote, broad at the base, curved at the edges, ovate-lanceolate. Berry oblong, obtuse at both ends, somewhat barrel-shaped. It re-

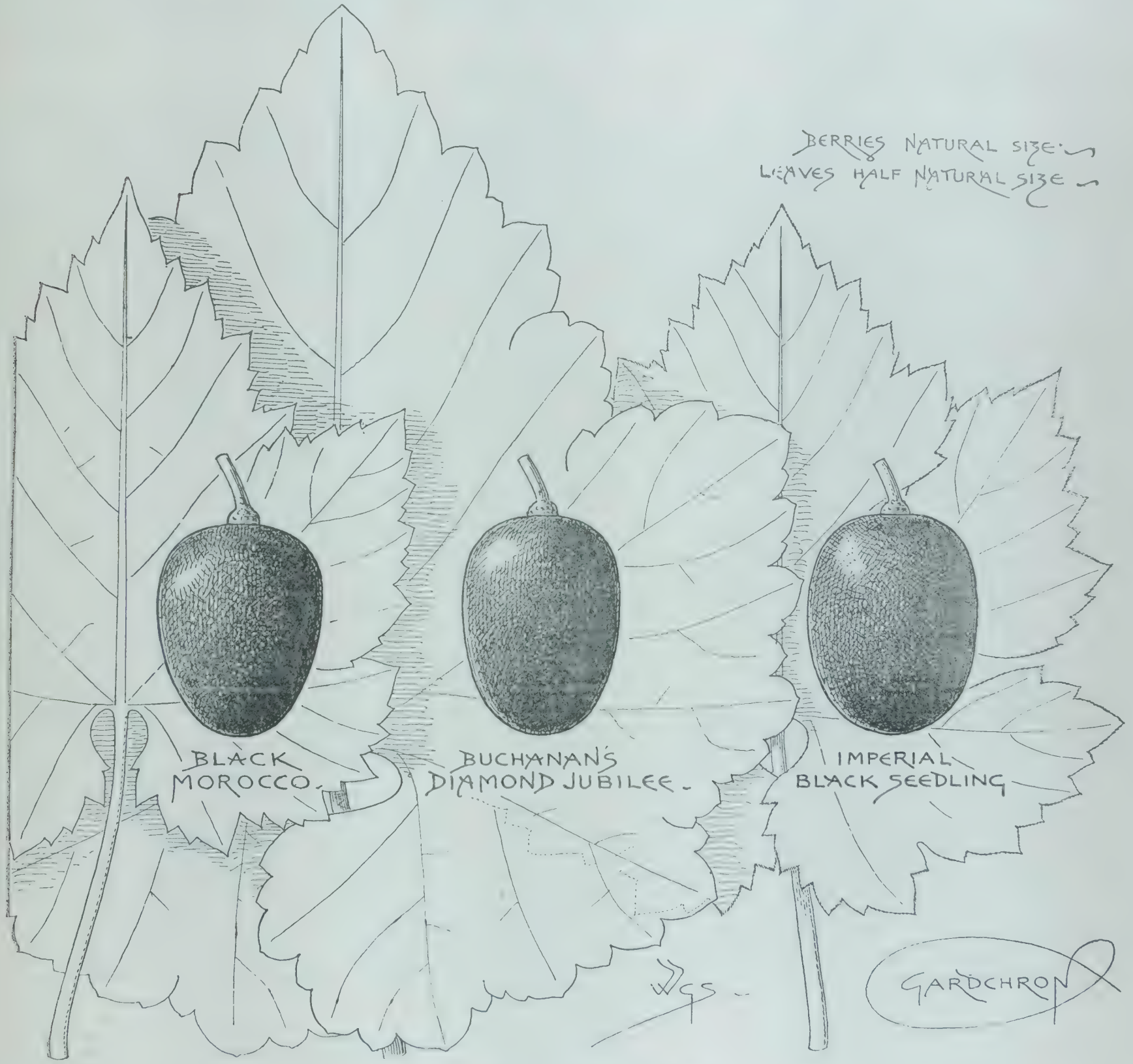

FIG. 120.—GRAPES AND LEAVES.

IMPERIAL BLACK AND OTHER GRAPES.

WE avail ourselves of the opportunity afforded by the exhibition by Mr. Goodacre at the Royal Horticultual Society on November 4 of certain varieties of Grapes, to make some comments on the varieties as shown. The specimens were measured and drawn with great care by Mr. Worthington Smith, whilst the descriptions were drawn up by ourselves from specimens kindly furnished by Mr. Goodacre. All the varieties towards the apex, slightly shrivelled. The illustration (fig. 120) shows the berry of the natural size.

Diamond Jubilee. — Leaves glabrous above, downy beneath; lobes very shallow, broad at the base with open sinuses; marginal teeth broad at the base; curved at the edges, ovate-acute. Berry broadly ovoid, slightly pointed, shrivelled.

Imperial Black.—Leaves downy on both surfaces, lobes deep, extending to midway between the margin and the midrib, lobes narrowed at the base, leaving narrow elliptic sinuses, pointed at

ceived an Award of Merit from the Royal Horticultural Society on the 4th inst.

Black Morocco had undoubtedly the finest flavour, but it does not set well, requires artificial aid, and soon loses colour, and shrivels when fully ripe.

Diamond Jubilee is described to us by Mr. Goodacre as a good grower, and very distinct. It shrivels when ripe, but keeps its colour well.

Imperial Black is described as a good late keeper; a very free setter; flavour improved by keeping.

NOTICES OF BOOKS.

THE FLORA OF THE BOMBAY PRESIDENCY, by Dr. Theodore Cooke, C.I.E. Part II., "Simarubaceæ to Leguminosæ. (Published by Taylor & Francis.)

THE second part of Dr. Cooke's *Flora of Bombay*, which has followed the first with commendable rapidity, brings the work down to the end of the sub-order Papilionaceæ of the Natural Order Leguminosæ. It is little more than a year ago since the first part was reviewed in these columns, and occasion was then taken to explain the scope of the work, and the circumstances under which it was undertaken. It is therefore unnecessary to return now to these points. Besides the important group Papilionaceæ, the account of which occupies more than half of the new part, the species belonging to fifteen natural families are dealt with in it. There is no falling off from the high standard of excellence attained by Dr. Cooke in his treatment of the Thalami floral orders described in the first part. The generic and specific descriptions are full without being prolix, the synonymy is judiciously selected, and the keys to the species have the merit of opening the locks for which they have been constructed.

The novelties described in this second part are, as might be expected, but few in number. The most interesting of them is Vitis Woodrowi, Stapf MSS., an erect shrubby Vine without tendrils, which is common near Poona, but which has remained undescribed until now. This species in habit resembles V. spectabilis, Kurz, a native of the Sikkim Terai, and the two, in respect of their non-scandent habit, form curious exceptions in a genus, the other members of which are climbers.

Dr. Cooke is to be congratulated on the speed at which he is producing admirable work. *G. K.*

OUR POULTRY.

The first part of this long-expected publication, which has been in preparation for many years, has now been issued by Messrs. Hutchinson & Co. There is something not altogether inappropriate in the juxtaposition of the portrait of the author, Mr. Harrison Weir, and of the head of an old English Game-cock, for first-class qualities pertain to both!

We presume all poultry-keepers will feel bound to read the book, and they will revel in the numerous illustrations, that do really illustrate, and not merely adorn the work. The generations that have had cause to admire the work of the artist will easily realise that this, his latest production, is characterised by that feeling for his subject, and that eclectic apprehension of patient points, which betoken the artist. Naturalists of all sorts will read the pages with curiosity, to know what so experienced and observant a man has to say on such subjects as in-and-in breeding, cross-breeding, and reversion, which are attracting so much attention in our days, and they will not be disappointed. From a purely practical point of view, Mr. Harrison Weir is a thoroughgoing advocate of purity of breed, and deprecates cross-breeding and mongrelism. From the author's standpoint, this is no doubt correct; but circumstances alter, conditions change, and then experimental cross-breeding may surely be worth a trial on a limited scale, in order to secure, if possible, more perfect adaptation to varying conditions. Mr. Weir, however, knows a good thing when he sees it, and having seen it he abides by it. It is refreshing to read his comments on the "points" beloved of fanciers, and of the mischief that is often wrought by the encouragement given at exhibitions to mere whims and caprices, to the detriment, it must be feared, of more substantial qualities.

The drawings of fowls trussed for table use afford a useful object-lesson as showing what the consumer wants, and what the breeder should in his own interest make every endeavour to supply.

Mr. Weir writes with fulness of knowledge gained from lengthened experience as a raiser a fancier, and as a judge. It may be that experts may see some things in a different light; but such is the lucidity and conviction of his style that neither the experts nor the novices can have any doubt of what the author intends to convey. The book is to be published in fortnightly parts.

MARKET GARDENING.

MARKET TOMATOS.

FOR the enterprising grower, anything and all that pertains to this will ever be of interest. My present note, however, more particularly refers to the size and shape of the fruit. As a fact, it may be taken for granted that so long as the fruit is round and smooth, all will be well for the trade. There is, however, this very special item to note, for quick cutting the fruit must not be very deep. With adverse seasons, even with the best of cultivation, Tomatos get year by year more susceptible to disease, as also to skin defects, which militate against the ripening. Dealing with deep fruits, such as Chemin Rouge, a good market variety in all respects, if anything goes wrong, this variety is certain to be affected. Again, towards the end of the season this variety is difficult to ripen, a fact I have proved over and over again.

Now the taste is in favour of the thinner or shallower fruit, such as the Ham Green Favourite, or those of the Comet type, which are more certain in ripening and colouring. The deeper round varieties, of which I notice one grower writes so highly, are good to look at, and handsome, but they will not be market varieties.

While market growers save Tomato seed from selected fruit, they well know that if they choose the rather deeper fruits of the approved varieties they generally come a little thinner—in fact, it requires some skill to maintain the true type year by year. I am pleased to note among the other improved market varieties Winter Beauty, a good all-the-year-round variety, which is not too deep. Growers naturally keep to their own strain of Tomato, but it would be wise were they to change, or rather interchange, with a grower from a distance. Too much in-and-in breeding in the same locality, even with new soil, tends to make the variety more tender. Tomatos now being the mainstay to many growers, it is well to consider how to improve the crop.

At the Royal Horticultural Society's exhibition, there were a typical lot of Tomatos, both in pots and cut fruit, staged from Hanwell, just right for market. This variety was derived from Ham Green Favourite strain, and should prove a good thing for the trade. The days of large fruit [?], such as Trophy, have gone by, and the medium and smaller fruited varieties are now the order of the day. More than one Grape-grower has this season assured me that the Tomato-crop has been more profitable than Grapes.

Why I have always had a preference (for winter and early spring fruiting) for Frogmore Prolific, is that by taking out the centre blossom the remaining flowers set well, and the fruits are about equal in size, shape, &c., to those of Comet. Any light thrown on the subject of Tomatos is always of interest, and the culture is on the increase. With regard to the deeper round fruits, these are to be preferred for dessert; and just now I am looking at a new variety, nearly round, smaller fruit, yet deeper than the ordinary market varieties, and these certainly are longer in ripening.

FRUIT-TREE PLANTING.

I am dealing in this short note more particularly with the actual preparation of the land, as also the planting itself. Never could there be a more favourable season for the due tillage of the land, either by plough and on the large scale, or by spade and fork by the smaller grower. Every opportunity should be taken to put the soil into a thoroughly working condition. Certainly the land should be well cleaned before manuring Stiff and clayey land should be thrown up roughly, and left for a few days; then the fork or scarifier, according to the size of the plot, should be set to work.

It is well on stiff soils to have compost in readiness for putting immediately over the roots. If this advice be acted upon, the nurseryman who supplies the trees is less likely to have complaints of trees dying, or failing to grow satisfactorily. If the tree is to proceed without check, and lay the foundation of successful bearing, work involved in carrying out the points named will be well repaid. Whole chapters might be written with profit concerning the tillage of the land before tree-planting is begun, but space is valuable. Most standard trees and even bushes are all the safer if staked at the first, and I would do this before planting, after opening the hole. I have found from actual experience this works well, as there is no fear of injury to the roots, and the tree is at once brought into line. Supposing there is much variance among growers respecting the methods of tree-planting, a safe method of proceeding is first to make the hole large enough to contain the roots when spread out, and give space for the men at work. A firm soil at the bottom of the hole is always good, and the tree, then being held in position, fine soil should be carefully spread and pressed with the hand among all the fibrous roots. When all is fairly covered, soil should then be placed over all, taking care to throw in no hard lumps. A broom-handle, not sharp pointed, may be used with advantage to fill in and make the soil firm. The tree being loose, although, perhaps, the stake is in position, it may be gently moved to and fro, so as to secure a due distribution of fine soil among the roots, and the soil returned to the hole, and trampled evenly and firmly. I do not like any trampling before the hole is filled, more especially if the soil is stiff, as it tends to water lodging in the hole. The tree may then be secured to the stake, and if properly planted, there will be no fear of the tree "hanging," through the settlement of the soil.

The market grower, to meet the severe competition to-day, must not only grow a crop of the best, but of as good a quality as possible. *Grower.*

THE PLANT-BREEDING CONFERENCE.

LUTHER BURBANK ON SOME OF THE FUNDAMENTAL PRINCIPLES OF PLANT BREEDING.—The fundamental principles of plant breeding are simple, and may be stated in few words; the practical application of these principles demands the highest and most refined efforts of which the mind of man is capable, and no line of mental effort promises more for the elevation, advancement, prosperity, and happiness of the whole human race.

Every plant, animal, and planet, occupies its place in the order of Nature by the action of two forces—the inherent constitutional life force with all its acquired habits, the sum of which is heredity; and the numerous complicated external forces, or environment. To guide the interaction of these two forces, both of which are only different expressions of the one eternal force, is, and must be the sole object of the breeder, whether of plants or animals.

When we look about us on the plants inhabiting the earth with ourselves, and watch any species day by day, we are unable to see any change in some of them. During a lifetime, and in some cases perhaps including

the full breadth of human history, no remarkable change seems to have occurred. And yet there is not to-day one plant species which has not undergone great, and to a certain extent constant change.

The life forces of the plant in endeavouring to harmonise and adapt the action of its acquired tendencies to its surroundings may, through many generations, slowly adapt itself to the necessities of existence; yet these same accrued forces may also produce sudden and, to one not acquainted with its past history, most surprising and unaccountable changes of character. The very existence of the higher orders of plants which now inhabit the earth, has been secured to them only by their power of adaptation to crossings, for through the variations produced by the combination of numerous tendencies, individuals are produced which are better endowed to meet the prevailing conditions of life. Thus, to Nature's persistence in crossing, we owe all that earth now produces in man, animals, or plants; and this stupendous fact may also be safely carried into the domains of chemistry as well, for what is common air and water but Nature's earlier efforts in that line, and our nourishing foods but the result of myriad complex chemical affinities of late date.

Natural and artificial crossing and hybridising are among the principal remote causes of nearly all otherwise perplexing or unaccountable sports and strange modifications, and also of many of the now well established species. Variations without immediate antecedent crossing occur always and everywhere from a combination of past crossings and environments, for po'ential adaptations often exist through generations without becoming actual, and when we fully grasp these facts there is nothing mysterious in the sudden appearance of sports; but still further intelligent crossings produce more immediate results and of great value, not to the plant in its struggle with natural forces, but to man, by conserving and guiding its life forces to supply him with food, clothing, and innumerable other luxuries and necessities. Plant life is so common that one rarely stops to think how utterly dependent we are upon the quiet but powerful work which they are constantly performing for us.

It was once thought that plants varied within the so-called species but very little, and that true species never varied. We have more lately discovered that no two plants are exactly alike, each one having its own individuality, and that new varieties have endowments of priceless value, and even distinct new species can be produced by the plant breeder with the same precision that machinery for locomotion and other useful purposes are produced by the mechanic.

The evolution and all the variations of plants are simply the means which they employ in adjusting themselves to external conditions: each plant strives to adapt itself to its environment with as little demand upon its forces as possible, and still keep up in the race. The best endowed species and individuals win the prize, and by variation as well as persistence. The constantly varying external forces to which all life is everywhere subjected, demand that the inherent internal force shall always be ready to adapt itself or perish.

The combination and interaction of these innumerable forces embraced in heredity and environment have given us all our bewildering species, none of which ever did or ever will remain constant, for the inherent life force must be pliable, or outside forces will sooner or later extinguish it. Thus, adaptability combined with perseverance is one of the prime virtues in plant as in human life.

Plant breeding is the intelligent application of the forces of the human mind in guiding the inherent life forces into useful directions, by crossing to make perturbations or variations of these forces, and by radically changing environments, both of which produce somewhat similar results, thus giving a broader field for selection, which again is simply the persistent application of mental force to guide and fix the perturbed forces in the desired channels.

Plant breeding is in its earliest infancy. Its possibilities, and even its fundamental principles, are understood by but few. In the past it has been mostly dabbling with tremendous forces which have been only partially appreciated, and has yet to approach the precision which we expect in the handling of steam or electricity; and notwithstanding the occasional sneers of the ignorant, these silent forces embodied in plant life have yet a part to play in the regeneration of the race which, by comparison, will dwarf into insignificance the services which steam and electricity have so far given. Even unconscious or half-conscious plant breeding has been one of the greatest forces in the elevation of the race. The chemist, the mechanic have, so to speak, domesticated some of the forces of

FIG. 121.—VIEW OF "THE DELL" IN HIS MAJESTY'S GARDENS, SANDRINGHAM. (SEE P. 358.)

Nature, but the plant-breeder is now learning to guide even the creative forces into new and useful channels. This knowledge is a most priceless legacy, making clear the way for some of the greatest benefits which man has ever received from any source by the study of nature.

A general knowledge of the relations and affinities of plants will not be a sufficient equipment for the successful plant breeder. He must be a skilful botanist and biologist, and, having a definite plan, must be able to correctly estimate the action of the two fundamental forces—inherent and external—which he would guide.

The main object of crossing genera, species or varieties, is to combine various individual tendencies, thus producing a state of perturbation or partial antagonism by which these tendencies are, in later generations, dissociated and recombined in new proportions, which gives the breeder a wider field for selection. But this opens a much more difficult one—the selection and fixing of the desired new types from the mass of heterogeneous tendencies produced—for by crossing, bad traits, as well as good, are always brought forth. The results now secured by the breeder will be in proportion to the accuracy and intensity of selection and the length of time they are applied. By these means the best of fruits, grains, nuts and flowers are capable of still further improvement in ways which, to the thoughtless, often seem unnecessary, irrelevant or impossible.

When we capture and domesticate the various plants, the life forces are relieved from many of the hardships of an unprotected wild condition, and have more leisure, so to speak, or, in other words, more surplus force to be guided by the hand of man under the new environments into all the useful and beautiful new forms which are constantly appearing under cultivation, crossing, and selection. Some plants are very much more pliable than others, as the breeder soon learns. Plants having numerous representatives in various parts of the earth generally possess this adaptability in a much higher degree than the monotypic species, for, having been subjected to great variations of soil, climate, and other influences, their continued existence has been secured only by the inherited habits which adaptation demanded; while the monotypic species, not being able to fit themselves for their surroundings without a too radically expensive change, have only continued to exist under certain special conditions. Thus, two important advantages are secured to the breeder who selects from the genera having numerous species—the advantage of naturally acquired pliability, and in the numerous species to work upon by combination for still further variations.

The plant-breeder, before making combinations, should with great care select the individual plants which seem best adapted to his purpose, as by this course many years of experiment and much needless expense will be avoided. The difference in the individuals which the plant-breeder has to work upon are sometimes extremely slight. The ordinary unpractised person cannot, by any possibility, discover the exceedingly minute variations in form, size, colour, fragrance, precocity, and a thousand other characters which the practised breeder perceives by a lightning-like glass. The work is not easy, requiring an exceedingly keen perception of minute differences, great practice, and extreme care in treating the organisms operated upon; and even with all the naturally acquired variations added to those secured by crossing and numerous other means, the careful accumulation of slight individual differences through many generations is imperative, after which several generations are often, but not always, necessary to thoroughly "fix" the desired type for all practical purposes.

The above applies to annuals or those plants generally reproduced by seed. The breeder of plants which can be reproduced by division has great advantage, for any valuable individual variation can be multiplied to any extent desired without the extreme care necessary in fixing by linear breeding the one which must be reproduced by seed. But even in breeding perennials the first deviations from the original form are often almost unappreciable to the perception, but by accumulating the most minute differences through many generations the deviation from the original form is often astounding. Thus, by careful and intelligent breeding any peculiarity may be made permanent, and valid new species are at times produced by the art of the breeder, and there is no known limit to the improvement of plants by education, breeding, and selection.

The plant breeder is an explorer into the infinite. He will have "no time to make money," and his castle—the brain—must be clear and alert in throwing aside fossil ideas and rapidly replacing them with living, throbbing thought, followed by action. Then, and not until then, shall he create marvels of beauty and value in new expressions of materialised force, for everything of value must be produced by the intelligent application of the forces of Nature which are always awaiting our commands.

The vast possibilities of plant breeding can hardly be estimated. It would not be difficult for one man to breed a new Rye, Wheat, Barley, Oats, or Rice, which would produce one grain more to each head, or a Corn which would produce an extra kernel to each ear; another Potato to each plant, or an Apple, Plum, Orange, or Nut to each tree. What would be the result? In five staples only in the United States alone the inexhaustible forces of Nature would produce annually without effort and without cost:—

5,200,000 extra bushels of Corn,
15,000,000 extra bushels of Wheat,
20,000,000 extra bushels of Oats,
1,500,000 extra bushels of Barley,
21,000,000 extra bushels of Potatos.

But these vast possibilities are not alone for one year, or for our own time or race but are beneficent legacies for every man, woman, or child who shall ever inhabit the earth. And who can estimate the elevating and refining influences and moral value of flowers with all their graceful forms and bewitching shades and combinations for colour and exquisitely varied perfumes? These silent influences are unconsciously felt even by those who do not appreciate them consciously, and thus with better and still better fruits, nuts, grains, and flowers, will the earth be transformed and man's thoughts turned from the base destructive forces into the nobler productive ones, which will lift him to higher planes of action towards that happy day when man shall offer his brother man not bullets and bayonets, but richer grains, better fruits, and fairer flowers.

Cultivation and care may help plants to do better work temporarily, but by breeding plants may be brought into existence which will do better work always, in all places and for all time. Plants are to be produced which will perform their appointed work better, quicker, and with the utmost precision.

Science sees better grains, nuts, fruits and vegetables all in new forms, sizes, colours and flavours, with more nutrient matter and less waste, with every injurious and poisonous quality eliminated, and with power to resist sun, wind, rain, frost, and destructive fungus and insect pests; fruits without stones, seeds, or spines; better fibre, coffee, tea, spice, rubber, oil, paper and timber trees, and sugar, starch, colour and perfume plants. Every one of these, and ten thousand more, are within the reach of the most ordinary skill in plant breeding.

Fellow Plant Breeders, this is our work. On us now rests one of the next great world movements; the guidance of the creative forces is in our hands.

The Week's Work.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Hot-beds.—In one of my Calendars in January last, I described the method I adopt of forming hot-beds with tree-leaves; and this being the season when many such are in use, it may be well to remind readers of the *Gardeners' Chronicle* of the importance of previously forming the walls of the beds with long litter, within which to deposit the leaves at a later date.

Pea-sticks.—Late Peas being now over, may be cleared off the land, and all useful Pea-sticks bundled up and put into a dry place.

Heavy Soils.—These can be ameliorated by digging at an early part of the winter every available quarter, leaving the surface in regular ridges, so that frost and wind may act upon it. With a suitable arrangement of the crops, a considerable part of every garden can be thus treated, and land so treated, if in good heart, will suit any kind of crop. There is, however, a great saving of labour when it is cropped subsequently with maincrop Potatos, Brussels Sprouts, and such-like subjects. In such case the proper distance apart at which the rows will stand, say, 2½ to 3 feet apart, may be marked; and after notching out the lines at this distance with a spade, commence the ridging by first taking out a small trench, then using a flat-tined digging-fork, which tool I much prefer to a spade for stiff soils; throw up the earth between the notched lines into a sharp ridge.

Globe Artichokes should be kept safe for the winter, cutting off the exhausted stems, and clearing away the decayed leaves; afterwards packing a quantity of dry tree-leaves around each stool sufficiently thick as to prevent frost reaching the plants, more being added if severe frosts appear imminent. Place some bracken or the long litter from spent hotbeds round each heap of leaves.

Seed Potatos.—An important job to be undertaken on wet days is the examination of the early Potato-sets, which may now be placed upright in shallow boxes in quantity sufficient for planting in the frames. Sets that are not required for planting early, and which may have begun to sprout, should have the longer sprouts rubbed off, and be set on end either in boxes or on shelves in the Potato-store. Both midseason and late Potatos may likewise need attention, more particularly if when lifted they were not spread out thinly, but left in heaps, owing to pressure of other sorts of work. Sort the entire stock, throwing out every diseased tuber, otherwise great loss of tubers may occur from the infection of the sound tubers. Give plenty of air in mild weather, as only by that means can premature sprouting be prevented.

Tidying up the Garden.—The leaves having mostly fallen from the trees, afford in dry weather a general tidying up to the kitchen garden, cleaning walks, filling ruts made by carts and wheelbarrows in bringing in manures and composts, &c., as I have advised. If the borders of the kitchen garden are occupied with herbaceous perennials, the weeds should be drawn out by hand. Seakale and Rhubarb plants should be cleared of dead leaves, and the soil freed from weeds, and the remains of all other crops cleared off. The stumps of Savoys, after the heads are cut, should be cleared of decayed leaves, and if the ground be not wanted for early cropping, they may be left for affording sprouts.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

The Apricot.—Being the first fruit tree to open its blossoms and leaves in the spring, any transplanting that is necessary should be done in early autumn, so that the roots may get hold of the soil again as quickly as possible. A south, or south-east aspect is the best for the Apricot, and low-lying damp situations should be avoided, as the wood seldom, if ever, ripens satisfactorily in such. Good friable loam forms the best rooting medium, and thorough drainage is essential. Like all stone fruits, the Apricot requires a moderate quantity of lime-rubble with the loam. Make the borders 2 feet deep and 3 to 4 feet wide when new ones are necessary. If new trees are to be set on old sites, much of the old soil should be taken away and an equal quantity of fresh loam substituted for it, adding a little of the old and making the soil at the bottom firm before commencing to spread out the roots. While this process is going on, give the tree a fair shake with the hands, so that the finer material may work down among the roots. Finally, cover all with 3 inches of soil, and make this firm by treading; avoid deep planting. Secure the branches by tying them loosely in a horizontal position along the wall until the spring. Moorpark, Kaisha, Hemskirk, Shipley, Turkey, and Peach, will be found good varieties to plant, and if another be required I would include Royal. When planted against walls, the stems of all fruit trees should stand 3 or 4 inches clear of the base.

Gooseberries.—Planting may be carried out from now up to the time the buds commence to push in the spring, but the autumn is decidedly the best season for such work. The best flavoured fruits are obtained from bushes in an open, sunny position, but to lengthen the supply, a few upright or cordon trained plants should be set against north walls, a position where they generally keep free of red spider even on shallow, dry soils. The bush is the usual form of training; and as in the case of red Currants, a clean stem 4 to 6 inches above ground should be maintained. Similar soil as was recommended for red and white Currants will suit Gooseberries also, and though not very deep rooting, good crops are seldom obtained on very shallow soils. Varieties having a spreading habit should be planted 6 feet asunder each way, and the more erect growing sorts 12 or 18 inches less. The following varieties will afford satis-

faction. Yellow: Golden Drop, Gunner, Leader, Trumpeter, Leveller, and Yellow Rough; white: Freedom, Transparent, Whitesmith, and Antagonist; green: Keepsake, Shiner, Thumper, Matchless, Green Hedgehog, and Greengage; red: Crown Bob, Whinham's Industry, Warrington, Rifleman, London, Lancashire Lad, Ironmonger, and Speedwell.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Treatment of Orchids in Foggy weather.—Town collections of Orchids suffer considerably from fog, especially if there is much smoke in the air. When it is seen that a fog is coming on, the houses and plants should be kept rather dry, and the warmth of the houses reduced somewhat, all ventilators shut close, and doors not opened more frequently than can be avoided. The deposit left on the glass by fogs should be removed as soon as the fog has cleared off. Fog to a certain extent in rural districts, although harmful, cause but little loss of flowers and flower-buds if the air in the Orchid-houses and the plants are kept dryish, and it is not necessary to shut off the lower ventilation.

Seasonable Hints.—At this season the cultivator of Orchids should pay close attention to his plants, as it is now that new roots start from the more forward growths of Odontoglossum, of which slugs are very partial, and at no other season is more injury done by them. This is owing to the introduction of the eggs of the creatures with the new sphagnum used in potting and resurfacing, which soon hatch out and commence their depredations. Care should be taken to isolate fine plants early in the season, and even so, slugs will be found on them, and it becomes necessary to lay baits and traps for them in the houses and on the pots, examining these night and morning. The most enticing are the leaves of Lettuce, slices of Carrot, or little heaps of bran, placed on bits of slate or tile. This method, if persistently followed up, very soon clears a house of slugs and snails. Woodlice and cockroaches must also be destroyed, by placing special poisons about the houses of an evening, changing the kind of poison from time to time. Another insect often found in Orchid-houses is Julus or centipedes, which however are easily destroyed by XL-All vapour, applied late in the evening when they are abroad.

Fumigation and Vaporisation.—Neither should be carried out excepting in moist and very calm weather, otherwise the fumes will not be equally distributed or kept inside the houses for a sufficient length of time to kill. The temperature of a house when fumigated should be rather below the normal for the time of year, and no damping should have been done after midday.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Chrysanthemums.—Where large flowers on disbudded plants are required for exhibition purposes or for decoration in the house, attention should now be turned to the propagation of plants for another year, it being of little use to take cuttings after this date—a remark that applies more especially to varieties which are naturally late, and which require early stopping in order to time their flower-buds correctly; and it is a distinct advantage to propagate all of this section early, and get the cuttings rooted without the aid of artificial heat. A cold frame or hand-light free from drip is the best contrivance, and in which the cutting-pots may be plunged to the rims in coal-ashes. The cuttings should be made, inserted, and have water applied quickly, so as to avert flagging, so do not take off more cuttings at any one time than can be made in the course of two hours. Keep the frame very close, but give air for half-an-hour daily, so that moisture may be dissipated. Shade may be required for a time, but it should be slight, and on frosty nights a mat or piece of Frigi Domo may be thrown over the glass.

Lapagerias.—Flowering being almost past, the weak growths of well established, vigorous plants may in part be cut away, an operation that is best carried out immediately the flowering is over. At this date the plants may be cleaned, there being little tender growth to be injured. The work should be carefully carried out, and the shoots tied out rather thinly and equally all over the trellis, &c.

Campanula pyramidalis.—In some parts of the country these plants must be wintered under glass, so as to protect them from damp rather than from frost, ample ventilation and light being afforded, and but a very small amount of moisture. It is wise to plunge the pots in a bed of coal-ashes, so as almost to dispense with the necessity of applying water before March.

Salvia splendens grandiflora.—In my notes during the year regarding this species, I have alluded to the value of seedlings over cuttings. Seeds—which are sparsely produced—may now be gathered if ripe, and kept till the spring before sowing them; for if not gathered as soon as ripe, they drop and are lost. There need be no fear of reversion to the type, as I find the better form reproduces itself quite true.

Aphelandras.—The earlier-flowering species are now waning, and should receive but little water at the root. A Roezlii, the most useful species, may be brought into flower in succession by retarding some of the plants in a house the warmth of which is not less than 55°.

Plant Cleaning.—Large specimen Camellias, Oranges, and Palms, may be cleansed from scale, &c., on days when the men cannot work outside; moreover, the leaves being mature are less liable to injury. Plenty of clean tepid water and a little soap will suffice for cleaning most of them, provided the work is properly carried out.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Canterbury Bells.—Any variety of Campanula calycanthema, if raised from seeds as advised in my calendar for June 7, to which proper attention has been paid, will now be available for planting in suitably prepared spots in the herbaceous perennial borders and other parts of the garden and pleasure grounds. The plants when set out look well in clumps or groups at a distance of 18 inches apart, and not planted deeply. They rarely fail to make a pretty display throughout the months of June and July. Planted in beds of one colour these Campanulas are exceedingly effective.

Foxgloves form good back row plants in the herbaceous perennial border, and are very desirable in the wild garden. By a persistent selection of the best types of flowers, a very superior strain can be obtained. The plant thrives in almost any ordinary garden soil, and with liberal treatment the flowers and flower-spikes are greatly increased in size.

Epilobiums.—E. angustifolium and E. hirsutum form another class of showy plants, useful for planting in shrubberies and in the wilder parts of the garden by lakes and streams. New plantations should be formed with young seedlings, which can usually be found in plenty beneath old clumps of the plants. These young plants being taken up with a trowel, may be planted at this season; or some of the large clumps may be lifted, divided, and transplanted.

Chrysanthemums.—Take strong cuttings of the early autumn-flowering and decorative varieties, insert them to the number of three in sandy loam and leaf-soil, and in well-drained 3-inch pots; and after applying water, stand them in a cold frame or under a hand-light, and keep close till rooted, affording as much water as will render the soil fairly moist. An occasional sprinkling with tepid water will keep the cuttings in a healthy condition until roots are formed. Excellent varieties are Madame Marie Massee, and the crimson sports of this variety; Horace Martin, Harmony, Godfrey's Pet, Market Pink, Rosy Morn, and September Beauty.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Vines of the white Muscat and others from which the Grapes are not consumed, may in the absence of a good grape-room be left on the Vines for some time longer, affording water to the inside border if an examination shows it to be too dry, for to allow it to get very dry is certain to cause shrivelling of the fruit, and to injure the Vines. Let water be applied in the morning, and afterwards cover the soil with dry hay or straw, and apply artificial heat for some days in the forenoon when ventilation is safe, but keep the vinery cool at night. Allow no plants needing water to remain in the vinery, and remove fallen foliage daily. If a grape-room exist, it is better practice to bottle the bunches, and thus afford the Vines a longer rest; the border may then be afforded water without any risks being run, and the vinery made of use for Chrysanthemums and other plants that need but little heat.

The Latest Vines.—The bunches having to remain on the Vines till the end of January, an examination of the border would probably show a lack of moisture at the present season, and in that case water should be at once afforded. Some Grapes, especially Gros Colman, suffer in flavour if the soil be not moist. The night temperature may be kept at 55°, and that of the day 10° higher with ventilation on every suitable occasion. Examine every bunch for decaying berries, remove decaying leaves, and allow no plants needing water to remain in the vinery.

Early Pot Vines.—The surface soil having been removed to a depth of 2 or 3 inches, replace it with fresh turfy loam mixed with Vine-manure, and stand the Vines on large pots or pedestals of dry bricks in a pit at least 3 feet deep at the front; fill the pit with fresh tree-leaves to the rims of the pots, trampling them firmly. The Vine-rods should be fastened horizontally near the surface of the bed till the buds break. During the first fortnight keep the pit close, and make no use of fire-heat unless on frosty nights, when sufficient to afford a warmth of 50° may be allowed. When the buds begin to swell increase this to 55°, and make the most of sun-heat. The earliest forced permanent Vines having been got in readiness for starting, the vinery should be closed between the present time and the end of the month. For the first fortnight no fire-heat should be employed unless the weather is very cold, the warmth being kept at 45° to 50°.

THE APIARY.

By EXPERT.

The Stocks.—The open weather we are having at present will cause some portion of the winter store of food to be consumed by the bees; and as there is very little chance of their replacing the same, it will be wise to feed a little, and thus leave them with plenty to go through the winter without interfering with them later on. In places where mice are numerous, precautions should be taken, or they will destroy the stock. A very simple method is to cover the skep entirely with wire netting of a very small mesh, which will prevent the mice getting in, and is very quickly put on. With the bar frames, a small queen-excluder tacked on to the front of the hive will answer the purpose for the winter, but this must be removed in the early spring, in order to allow the bees to enter more easily, as they often come in then laden with pollen, in getting through the perforated zinc they lose some of it; and with bees time is everything.

New Quarters.—Many bee-keepers wish in the summer their bees were in different quarters, and that for various reasons, and those who contemplate shifting the hives should mark out and prepare their new places, and as soon as frosts set in, the hives should be removed; for skeps or bar-frame hives should not be removed now, as the first fine day will bring them hovering around their old quarters, and many will be lost. If bees are to be removed a mile or more, it will not matter. I hope in my next to deal fully with removing bees, pointing out the right and the wrong methods.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the **PUBLISHER.**

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

MONDAY,	Nov. 17	Nat. Chrys. Soc. Floral Com. meet.
TUESDAY,	Nov. 18	Roy. Hort. Soc. Coms. meet; Leeds Paxton Soc. Chrys. Show (2 days).
WEDNESDAY,	Nov. 19	Chrysanthemum Show at South Shields (2 days).
THURSDAY,	Nov. 20	Leamington, Warwick, and Dist. Chrys. Soc. Show (3 days), Bristol Chrys. Soc. Show (2 days).
FRIDAY,	Nov. 21—Aberdeen Chrys. Show (2 days).	

SALES FOR THE WEEK.

MONDAY to FRIDAY, NOVEMBER 17 to 22—
Dutch Bulbs, by Protheroe & Morris, at 67 & 68, Cheapside, E.C., at 11 o'clock.

MONDAY, NOVEMBER 17—
Bulbs, at Stevens' Rooms, at 12 30; Lilies, at 2.30.—Clearance Sale of Nursery Stock at Oakleigh Road, Whetstone, by Protheroe & Morris, at 12.

TUESDAY, NOVEMBER 18—
Nursery Stock at Cart House Lane Nursery, Woking, by Protheroe & Morris, at 12.

WEDNESDAY, NOVEMBER 19—
Bulbs, &c., at Stevens' Rooms, 12 30.—Nursery Stock at Cart House Lane Nursery, Woking, by Protheroe & Morris, at 12. Azaleas, Palms, &c., at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.; Lilium longiflorum, L. Harrisii, &c., at 5.—Clearance Sale at Merstham, by Mr. E. Wilson, at noon.

THURSDAY, NOVEMBER 20.—
Nursery Stock at Cart House Lane Nursery, Woking, by Protheroe & Morris, at 12.

FRIDAY, NOVEMBER 21—
Clearance Sale of Stove and Greenhouse Plants at Spring Grove, Isleworth, by Protheroe & Morris, at 12.30; Orchids, at 67 & 68, Cheapside, E.C., at 12 30.

DAILY—
Bulbs, &c., by Pollexfen & Co., at 12.30.

TENDER.

Shrubs and Trees, Fulham Borough Council, Town Hall, Fulham.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —41 8°.

ACTUAL TEMPERATURES:—

LONDON.—*November* 12 (6 P.M.): **Max.** 57°; **Min.** 47'.
November 13.—Frost at night; foggy.

PROVINCES.—*November* 12 (6 P.M.): **Max.** 55°, S.W. Ireland; Min. 48°, N.E. Scotland.

Sandringham. WE publish in this issue an illustration (fig. 121, p. 355) showing a view in the Royal gardens, which formed part of a series which we were privileged by HIS MAJESTY'S permission to obtain, with a view of illustrating the gardens in our Coronation Number. That number contains a full and richly illustrated account of the Royal gardens. Additional interest attaches to them at the present moment with reference to the visit of His Majesty the GERMAN EMPEROR, and the tree-planting which has been carried out to commemorate the anniversary of the birthday of the KING and the visit of His Imperial Majesty of Germany. On Monday last, the great event of the afternoon was, we quote from the *Times*, the planting by various members of the Royal Family, including the KAISER, of a number of Purple Beeches at a spot known as the Coronation Oval in the centre of a new avenue. This avenue, which is of Sycamores, with a hedge of Privet behind it on either side, fringes the ancient "ailesway," said to be British, and to mean "the eagle's way." In future it will be known as the "King and Queen's Avenue," in this part, at any rate, and it connects the Sandringham estate with the recently-acquired estate of Anmer. The avenue has been presented by the tenants and labourers of the Sandringham estate, and it was interesting to see them flocking down to the scene of the plantation, and to watch the greetings which passed between them and the various members of the Royal Family as they drove from Sandringham to the appointed spot. Then the planting of the trees was proceeded with. The King, Queen Alexandra, the Emperor, the Prince of Wales, Prince and Princess Charles of Denmark, Princess Victoria, Prince Edward of Wales, Prince Albert of Wales, Prince Henry of Wales, and Princess Victoria Mary of Wales each planted a tree. Queen Alexandra planted an additional Beech for the Princess of Wales. Other trees were added to the lines on behalf of the Duke and Duchess of Fife. The trees had been placed in position early in the day, together with two spades used for a similar purpose by King Edward at Keele Hall on July 15, 1901 The handles of the spades were of polished mahogany, bearing an inscription on silver.

TOWN GARDEN, PRINCES STREET, EDINBURGH (Supplementary Illustration).—The Supplement, given with the present issue, shows an ornate parterre in the public gardens abutting on Princes Street in the New Town, Edinburgh. At the further end of this parterre the statue of BLACK, and the base of the Sir WALTER SCOTT monument are visible; to the left hand is the street, and to the right the broad promenade that stretches the entire length of the garden. The style of filling the beds is that known as the "mixed," that is, flowering plants of comparatively low growth are made to serve as a carpet, upon which flowering and foliage plants are sparingly disposed, a method showing a wide departure from the old style of massing plants of one or more colours, and of uniform height, and it affords greater variety. Mr. J. MCHATTIE, superintendent of the Edinburgh parks and gardens, kindly furnishes a list of the plants with which the beds are filled annually, viz., 100,795 in 98 species and varieties. There are fifty-five beds into which go Lilium lancifolium album and L. l. rubrum, Pelargonium peltatum, zonal Pelargoniums, Fuchsias, Begonias, Carnations, Abutilons, Aralias, Acacias, Ficus elastica, Grevilleas, Heliotropes, Humeas, &c. The summer beds are at their best from the last week in June to the last in September.

ROYAL HORTICULTURAL SOCIETY. — The next meeting of the Fruit and Vegetable and Floral Committees of the Royal Horticultural Society, will be held on Tuesday, November 18, in the Drill Hall, Buckingham Gate, Westminster, 1 to 4 p.m. A lecture on "Spraying Fruit Trees and Packing Apples as practised in Canada," will be given by Mr. CECIL H. HOOPER, F.R.H.S., at 3 o'clock.

—— At a general meeting of the Royal Horticultural Society, held on Tuesday, November 4, forty new Fellows were elected, amongst them being Lady JULIA FOLLETT, Major CHARLES A. LESLIE, Major GEORGE A. MARSHALL, and the Hon. Mrs. HARBORD, making a total of one thousand and forty-five elected since the beginning of the present year. The Society's Annual Examination in the Principles and Practice of Horticulture, will be held on Wednesday, April 22, 1903. Full particulars may be obtained by sending a stamped and directed envelope to the Society's offices, 117, Victoria Street, London, S.W. The questions set at all the previous examinations are now publishe price 1s. complete.

LINNEAN SOCIETY.—On the occasion of the evening meeting on Thursday, Nov. 20, at 8 P.M., the following papers will be read:—1, "Digestion in Plants," by Prof. SYDNEY H. VINES, M.A., F.R.S., P.L.S., &c.; 2, "Relation of Histogenesis to Tissue-Morphology," by Mr. A. G. TANSLEY, B.A., F.L.S., &c.; 3, "Stelar Structure of Schizæa and other Ferns," by L. A. BOODLE, F.L.S., &c.

HORTICULTURAL CLUB. — The next house dinner of the Club will be held on Tuesday, November 18, at 6 P.M., at the Hotel Windsor, Victoria Street, when Mr. HENRY STEVENS will give his promised talk about Photography, illustrated with lime-light views. At the December meeting, Mr. HERBERT E. MOLYNEUX, F.R.H.S., F.N.R.S., will open a discussion on "Roses for Gardens near large Towns."

SALE OF POISONS. — It is said that the committee appointed to consider the question of the sale of poisons for agricultural or horticultural purposes are about to present their report, and that it is recommended that seedsmen and others, not chemists or druggists only, should be allowed to sell such articles subject to certain regulations to be drawn up by the Privy Council. If these regulations should prove to be adequate for the protection of the public, a source of irritation will be removed, and at the same time the frightful risk which exists under present conditions will be sensibly abated.

THE LONDON LORD MAYOR'S PROCESSION.—The show itself very happily illustrated the business and the tastes of the Lord Mayor, as well as his Imperial instincts and tendencies. He and his wife are devoted to horticulture, and his Lordship is the Master of the Gardeners' Company. It was fitting, therefore, that one of the cars should be a garden-car, a moving bower of white and yellow Chrysanthemums with delicate greenery intermixed; its horses trapped with light blue, and escorted by picturesque gardeners in antique costumes, such men as might have helped to lay out some old-time garden around a Jacobean mansion, or the "bosquets" of Versailles and Fontainebleau.

SIR TREVOR LAWRENCE.—Among the Royal honours conferred on the occasion of the anniversary of His Majesty's birthday, we note that the Knight Commandership of the Royal Victorian Order has been bestowed upon Sir JOHN JAMES TREVOR LAWRENCE, Bart. Sir TREVOR has rendered such great public services in connection with St. Bartholomew's Hospital and with the Royal Horticultural Society, that horticulturists will hail the news with the greatest satisfaction, and may be pardoned for looking on it as a good omen in relation to the Horticultural Hall.

FRUIT GROWERS' DEPUTATION.—A thoroughly representative deputation from the National Fruit Growers' Federation attended at the Railway Clearing House on the 4th inst., to urge upon the General Managers the necessity which exists for certain improvements in the transit of fruit and vegetables. The deputation consisted of delegates from nine of the principal fruit growing counties, and were introduced by Colonel C. W. LONG, M.P., President of the Federation. Colonel C. E. WARDE, M.P., and Captain A. H. LEE, M.P., also attended. Colonel LONG briefly sketched the objects of the deputation, and the various speakers dealt with the following points: improvement in the loading of fruit; provision of properly closed but ventilated trucks, and refrigerator-cars for long distances; quicker delivery from terminus to market, and more prompt return of empties; a uniform special mileage rate, as

Town Garden, East Prince's Street, Edinburgh: arranged by Mr. J. W. McHattie.

now in force on the Great Western Railway; and finally, a clearer and more favourable interpretation of Owners' and Railway Companies' risks. In concluding the statement of the case for the growers, Colonel LONG suggested that an advisory committee might be appointed by the Federation to confer with the representatives of the Railway companies on the details of the proposed reforms. The Chairman of the Board of General Managers in his reply, thanked the deputation for their attendance, and for the clear way in which they had laid their proposals before the Board. He fully approved of the suggestion of Colonel LONG with regard to an advisory committee, which he thought might be very useful, and promised that all the questions then brought forward should receive the most careful consideration.

SWEET PEAS FROM IRELAND.—A correspondent kindly sent for our inspection two large bunches of Sweet Peas, picked in his garden at Cappoquin House, Waterford, on November 1. The varieties were Navy Blue, Apple Blossom, Sadie Burpee, Prima Donna, Lady Mary Currie, Queen Victoria, Duke of Westminster, and Duchess of Sutherland, the first two named being particularly good. The seeds, he tells us, were sown in pots on February 4, and the plants were set out on April 28 on prepared ground. They began to flower in the last week of June. The haulm is very tall, one variety (Navy Blue) measuring 12¼ feet from the ground. The flowers and foliage were fairly fresh-looking, but evidently suffering from lack of warmth and sunshine.

THE EDINBURGH SEED TRADE ASSISTANTS' DINNER.—The eighth annual dinner of the Seed Trade Assistants of Edinburgh, will be held under the presidency of ROBERT LAIRD, Esq., at FERGUSON & FORRESTER'S, 129, Princes Street, on Friday December 5. Chair to be taken at 7.30 P.M., promptly. Gentlemen who intend being present, are respectfully requested to secure their tickets (4s. each), before Monday, December 1. *Jas. H. Parker, Hon. Secretary.*

LORD BRASSEY.—We hear that Lord BRASSEY has purchased Masketts Manor, in the parish of Maresfield, near Uckfield, Sussex, and contemplates building a mansion and making a fine garden there. His lordship has been a liberal patron of horticulture for many years past, and his garden at Normanhurst is among the most celebrated.

APPLE "CORONATION."—Mr. H. C. PRINSEP informs us that he has disposed of the stock of this variety to Mr. GEO. PYNE, Denver Nurseries, Topsham. It is a seedling raised at Buxted Park Gardens, from Cox's Orange Pippin, and gained an Award of Merit from the Royal Horticultural Society, on Oct. 21. The fruit is above medium size, roundish, and of even outline. The exposed side is streaked and mottled with red, while the shaded side is bright green at first, changing to pale yellow as the fruit ripens. The eye is open, set in a rather deep, round depression; stalk straight, very slender, from 1 inch to 1¼ inch in length, set in a smooth, rather deep cavity; flavour, excellent. The fruit is in season from October until Christmas, and the tree is described by Mr. PRINSEP as being hardy and of prolific fruiting habit.

TECHNICAL INSTRUCTION IN THE COUNTY OF MONMOUTH.—The report of the Organising Secretary shows what good work has been done in horticulture, bee-keeping, dairy-work, hedging, poultry-keeping, sheep-shearing, horse-shoeing, fruit preservation, &c., as well as in the keeping of meteorological records. More rain fell than in the previous year, and on a greater number of days. During six months, January to June, 1902, the fall amounted to 15·74 inches, as compared to 21·65 inches for the same period in 1897. A similar increase is noted when the months from June to September are taken into consideration.

SWEET PEAS.—A discussion is going on in some of the American publications as to the possibility of cross-fertilisation and consequent variation in Sweet Peas as a result of the visit of insects. Of course, the peculiar structure of the flower would seem to be a special adaptation to the visits of insects; but for all that, it would not preclude self-fertilisation. The subject is one which growers on a large scale, and the members of the Sweet Pea Society in particular, should have practical experience, and their remarks on the subject would be received with interest.

THE ROYAL GARDENERS' ORPHAN FUND.—The Right Hon. Earl CARRINGTON has kindly consented to preside at the next anniversary festival of this charity, which will take place at the Hotel Cecil, on Tuesday, May 5, 1903.

CORONATION MEMORIAL TREES.—On the 5th inst., two fine English Oak saplings, each about ten years old, which had been presented to Portsmouth by the KING, as commemorations of the Coronation, were planted in Victoria Park by the Mayor of the borough, Major W. T. DUPREE. The trees were sent from Windsor, and will doubtless take kindly to their new quarters.

THE NEW WINTER RHUBARB.—This interesting novelty from Australia, which received an Award of Merit from the Fruit Committee at the Drill Hall on the 4th inst., is already in commerce here under three different names certainly, and possibly may have others. That is the sort of thing which leads to so much confusion and annoyance, as the public cannot know that the diverse names apply to the same thing. Messrs. SUTTON & SONS sent it to the Drill Hall, and a plant of it to Chiswick, some two years since, as Sutton's Christmas. They exhibited it under the same title on the 4th instant. Messrs. JAS. VEITCH & SONS also showed it on the 4th as Topp's Winter. Our report referred to both exhibits, but only under the original name, Christmas Rhubarb. Evidently this is a case in which the Royal Horticultural Society should make clear which name is recognised as the original one. Messrs. G. BUNYARD & SONS' list the variety as New Crimson Winter. Some common ground of adjustment as to the proper name seems to be very needful.

NATIONAL ROSE SOCIETY.—A meeting of the General Purposes Committee will be held at the rooms of the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, on Tuesday, November 18, at 2 P.M. The agenda paper contains the following items:—The Guarantee Fund, alterations in bye-laws, &c., arrangements for the annual meeting and dinner, and other business. Another meeting of the committee will be held at 3 P.M. to consider the report of the committee for 1902; the Guarantee Fund; house list of committee and officers for 1903; alterations in bye-laws and regulations; northern show in 1903; arrangements for annual meeting and dinner; and other business. *Edward Mawley, Hon. Secretary.*

THE ORDER OF LEOPOLD.—We are glad to hear that M. COGNIAUX, the eminent orchidist, has been nominated as Chevalier of the Order.

CHINESE CONIFERS AND CYCADS.—The last instalment of FORBES and HEMSLEY'S Enumeration of Chinese plants, published in the *Journal of the Linnean Society*, mainly consists of a list of the Conifers of China, drawn up by Dr. MASTERS. One new species of Pinus, P. Henryi, is described from Hupeh. From Mount Omei a new species of Keteleeria is recorded. Altogether, one species of Thuya and one of Libocedrus are mentioned, two of Cupressus, six of Juniperus, one of Cryptomeria (C. japonica), one of Glyptostrobus, five of Cephalotaxus, one of Taxus, two of Torreya, one of Ginkgo, six of Podocarpus, one of Cunninghamia, eleven of Pinus, six of Picea, three or four of Keteleeria, four of Tsuga, four of Abies, one of Pseudolarix, and six of Larix. Sir W. T. THISELTON-DYER contributes the account of four species of Cycas. The Monocotyledons are, we believe, completed, and will, we hope, without further delay, be published.

MR. T. F. PEACOCK.—Those interested in the fortunes of the Gardeners' Royal Benevolent Institution will learn with regret of the death of Mr. PEACOCK, the honorary solicitor to the Institution, to which he has for years rendered excellent service.

LATE BEGONIAS.—Messrs. B. R. DAVIS & SONS, Yeovil, have sent us a lot of beautiful flowers of tuberous-rooted Begonias, gathered in the open on November 4.

A GIANT CUCUMBER.—A specimen fruit of their new "Hercules" Cucumber, sent us by Messrs. KELWAY & SON, Langport Nurseries, Somerset, measures 2 feet 7½ inches in length, and is 10 inches in circumference! At shows where the judges favour size, this should have an exceptional chance of gaining a prize.

KINGSTON-ON-THAMES FRONT FLOWER-GARDEN COMPETITION.—The usual presentation of prizes in connection with this interesting competition took place in the new buildings of the Technical Institute of the town, on Saturday last. The Mayor, Dr. ST. L. FINNY, presided, being supported by several members of the municipal corporation, the prizes being distributed by the M.P. for the division, T. SKEWES COX, Esq. Prior to that function, Mr. J. WRIGHT, V.M.H., one of the Surrey C.C. judges, gave a brief address, in which he described the points sought for in the garden and window-front decoration, also some information as to the general condition of cottage gardening in Surrey. There were thirty-five prizes to be distributed by Mr. SKEWES COX, and every recipient was present to receive them. Mr. SKEWES COX gave a brief address, referring especially to the charm added to town life by the aid of front gardens, of which there were hundreds in Kingston. It was no doubt an absolutely unique town competition. In proposing a vote of thanks to the Mayor, Mr. A. DEAN referred to the admirable way in which his Worship had planted memorial trees a few months earlier, and said, if needed, he would gladly give him a recommendation as a gardener At the conclusion, the Mayor invited his friends to partake of tea.

HOME CORRESPONDENCE.

CORYDALIS THALICTRIFOLIA.—This is a Chinese plant which so far I have not seen, but it is, as I suppose, quite distinct from Dicentra thalictrifolia [Yes.], a Himalayan species with yellow flowers, which I saw in the enclosed garden at Glasnevin, amongst other rare plants, twenty years ago or so. I am led to infer that the plants are different, as I see both named in the *Index Kewensis* under their respective genera. I should also like to ask whether Dicentra thalictrifolia is now grown in any English gardens, and whether it produces seed therein? There is a moderately good figure of this Dicentra in vol. ii. of Sweet's *British Flower Garden* (Series 2), t. 127, under the name of Dactylicapnos thalictrifolia, Wall; and it is there also said to be the Dielytra scandens of Don. It is described in Sweet (l.c.) as being "a hardy annual, and is propagated by seeds;" but if I am not mistaken, the plant grown at Glasnevin was a perennial herbaceous one. *F. W. Burbidge.*

AZALEA INDICA.—Looking in on an enterprising grower, who stands on the market, in the last days of October, I was struck with the appearance of a batch of 500 Azalea indica just arrived from the Continent; the plants had been just potted up, and set out in a cold, span-roofed house, and fire-heat used to keep out frost. These plants with good heads, well set with flower-buds, landed home at just over 1s., or to be exact 1s. 1*d.* each, would, if sold at double the price, represent a fair return for outlay, as also for labour, firing, and house room. Last year he began with 100, and they having done well, the larger order is the result. Truly, it is a marvel how such clean, healthy grown plants can be grown for the money. The market, with all its fluctuations, &c., is always open for the sale of Azaleas at remunerative prices. *Stephen Castle.*

AWARDS AT THE DRILL HALL. — This, of course, is one of the perennial subjects for discussion, and is likely to be so until it is more fully understood on what basis, if any, the Committees make their awards. A case in point is that of the Fruit and Vegetable Committee at the last meeting. A collection of over seventy dishes of Apples, consisting chiefly of well-known cooking, together with some dessert varieties, was staged in very good form, and justly awarded a Silver-gilt Knightian Medal. Near this was an exhibit of dessert Apples. Now the size of the collection is not taken into consideration, but the condition and quality of the fruit. Here it was small and badly shaped for table use, and furthermore some specimens showed signs of Fusicladium dendriticum. As the Society is getting into such a flourishing condition, would it not be more for the advancement of horticulture for the Committee to adopt a still higher tone, and condemn instead of awarding in cases such as the latter a "Bronze Banksian?" or must it ever be in gardening, that criticism be disavowed? *W. H. Patterson, The College, Reading.*

LEAF-SHEDS.—To me it is very singular how modern cultures from time to time tend to bring out in some form or other old garden practices. This thought was recently brought to mind by a correspondent's description of the way tree leaves are used in growing Orchids by the Messrs. Charlesworth and others. Taking it as a fact that this practice may be much extended, then will arise the question of a suitable leaf-supply all the year round. This can only be obtained by gathering the leaves when fairly dry during the present month, and storing them for use. Some of your older fruit-growing readers will remember the time when a big supply of tree leaves had to be provided each year, and kept fairly dry for forming hot-beds in Pine-pits. I know of two gardens where sheds were put up for this purpose. One was against a wall facing east, the other facing north. They were open at front and at one end, having stout posts to carry the roof, which in one case was covered with tiles, and the other blue slates. In country districts, away from smoke, a roof covered with corrugated iron sheets would answer well. Of course, for Orchid-growing, nothing like the quantity of leaves would be required as was the case for replunging Pines. *H. J. C., Grimston, Tadcaster.*

BARREN CUCUMBERS. — I enclose barren growths of Cucumber. I had two plants thus affected, and they were cuttings struck from a bearing plant. I had also one plant in a cold pit similar to this, which was a seedling. Can you assign any reason why they should be so? Neither plant has shown a fruit of any sort. *James Mayne.* [The parts of the flower are all more or less disorganised. Instead of assuming their proper appearance, they are all more or less leafy. It is impossible to say with certainty what is the cause of such changes. Conjecturally, it may be attributed to a sudden check to growth at a certain stage from a sudden drop in the temperature, and attended by excessive moisture. ED.]

MANURIAL EXPERIMENTS.—As the following brief account of some manurial experiments which I have just completed on Kidney Beans and Potatos, may be interesting to many of your readers, and probably be of some value to them, you would confer a favour by publishing it in your valuable paper. In the case of Kidney Beans, one plot received no manure; a second plot, 1 cwt. per acre of sulphate of potash; a third plot, 4 cwt. per acre of basic slag; and a fourth plot, 1 cwt. of sulphate of potash and 4 cwt. of basic slag per acre. The yield from the four plots was at the following rates per acre:—With no manure, 183 pots; with sulphate of potash, 233 pots; with basic slag, 193 pots; with sulphate of potash and basic slag together, 235 pots. The great value of sulphate of potash for this crop on soils such as mine, which is medium and inclined to be light, is apparent. With this manure alone at a cost of 10s. per acre, the crop was increased to the extent of 50 pots per acre. Basic slag alone, costing 10s., increased the yield by 10 pots, whilst on the fourth plot on which sulphate of potash was added to the slag, there was a further increase of 42 pots. In the case of the Potato crop, one plot was not manured; a second received a complete chemical mixture, consisting of sulphate of potash 1 cwt., nitrate of soda 2 cwt., and basic slag 4 cwt. per acre; and a third plot the same dressing as the second, except that sulphate of potash was omitted from the mixture. The yields per acre were:—with no manure, 4 tons 2 cwt.; with the complete manure, 12 tons 6¼ cwt.; and with the complete manure, less sulphate of potash, 5 tons 11½ cwt., per acre. Hence, the complete mixture increased the yield by 8 tons 4½ cwt., but the mixture from which the sulphate of potash was omitted gave only 1 ton 9½ cwt. in excess of the unmanured plot. *J. Y. Holmes, Walnut Tree Farm, Salwarpe, Droitwich.* [A "pot" varies from 64 to 72 lb. in the different West Country markets. ED.]

THE LATE CHARLES MARIES.

KNAURS ON TRUNK OF TULIP-TREE.—Referring to "F. W. B.'s" note on the warts or knaurs on the trunk of a Tulip-tree (p. 329), and also to the report of the proceedings of the Royal Horticultural Society on the following page (330), may I refer to a note of mine on Liriodendron tulipiferum in the *Gardeners' Chronicle* for Aug. 2 last, p. 85. The large tree at Kew which I there referred to, which had a trunk of considerable diameter, was almost entirely surrounded near its base with knots of a similar character to those described by your correspondent. The tree stood on the left hand side of the walk leading from the Cumberland Gate to the Broad Walk. A section of the trunk showed knots or burrs thickly formed throughout its diameter, the "soft fleshy bark" described by your correspondent shrivelled up in the course of drying, and kept the knots isolated, and in some cases loose. A cabinet specimen from the firmest or most solid part of the trunk was cut out, and if I remember rightly is in the Museum, so that Mr. Burbidge may perhaps at some time be able to compare his specimen with that at Kew. *John R. Jackson, Claremont, Lympstone, Devon.*

NEW GRAPES.—I see in the *Gardeners' Chronicle* you state that Mr. Goodacre had gained an Award of Merit for his new Grape, but you do not state from what this seedling was raised. In showing new fruits of any kind, the Messrs. James Veitch & Sons always state the parents of such new fruits, which is only right. If the parents of new Grapes, or any fruit, were given, all practical fruit-growers would know whether or no it was worth buying. If I remember aright, the Grape named Lady Hastings when first shown was said to be a "sport," now I see by some it is called the new seedling Lady Hastings. A true version as to the origin of any new flower, fruit, or vegetable, would be the means of strengthening the character of the novelty, and establishing greater confidence among practical gardeners. *W. C. Leach, Albany Park Gardens, Guildford.*

Obituary.

CHARLES MARIES. — Everyone interested in horticulture will hear with deep regret of the sudden death of Mr. Charles Maries, Superintendent of the magnificent gardens of Gwalior, and previously superintendent of those of Durbhungah, India, both appointments which he filled with great credit and satisfaction.

Maries was a native of Stratford-upon-Avon, and was at school under the present Prof. Henslow, at the grammar school at Hampton Lucy, from 1861 to 1865. Charles is described as a bright little fellow, who took kindly to the botanical instruction given him by the Head Master. From school he proceeded to the nursery held by his elder brother at Lytham, in Lancashire, where he remained for seven years.

It is, however, as a plant collector that Mr. Charles Maries has earned the gratitude of the horticultural world, as it was while employed at the Chelsea nurseries in August, 1876, in company with Mr. C. Curtis, another well-known plant collector, that Mr. H. J. Veitch, appreciating his capacities, selected him for the carrying out of a scheme having for its object the exploration of part of China and Japan, and especially of the great Ichang Valley, which was rightly supposed to be exceptionally rich in arboreal vegetation, and in which undertaking he was very successful. Our collections are all the richer for the many trees, shrubs, and plants which he discovered, and which, through his ingenuity in packing and forwarding, he managed to send alive to this country at a time when travelling was slow and uncertain in comparison with the present day.

Among his numerous discoveries may be noted Styrax obassia, Primula obconica, Rodgersia podophylla, Platycodon grandiflorum Mariesii, Hamamelis mollis, Pteris longifolia Mariesii, and Caryopteris mastacanthus—all plants which have come to stay; also the curious Hydrangea hortensis Mariesii, and the lovely H. hortensis rosea, which in this country has not yet been appreciated at its full value, which is now cultivated in large quantities by Continental growers, who make a specialty of flowering plants suitable for the trade of florists and decorators.

The numerous Conifers collected by Maries in Japan were placed in the hands of Dr. Masters for determination by Messrs. Veitch. Many of them were described and figured in this journal, and a general summary of them is given in Dr. Masters' "Conifers of Japan," published in the *Journal of the Linnean Society*, vol. xviii. (1880). Mr. Harry Veitch also alluded to them in his excellent paper on "The Coniferæ of Japan," read before the Conifer Congress of the Royal Horticultural

Society, and published in the *Journal* of the Society, vol. xiv. (1892), p. 20. Among them was an undescribed species of Abies, which was named after the collector whose name it bears (see *Gardeners' Chronicle*, December 20, 1879, p. 780).

Mr. Maries, who was a Fellow of the Linnean Society, and also a V.M.H., and an occasional contributor to garden publications and to the *Journal of the Royal Horticultural Society*, was much esteemed by all who had the pleasure of his acquaintance, and will be deeply regretted by the many friends with whom he has remained in correspondence to the end of his days, on Oct. 11, when he passed away at Gwalior, in the prime of life, leaving a widow, a son, and a daughter, for whom our deepest sympathy is felt in their sad bereavement.

We take what follows from the *History of European Discoveries in China*, by E. Bretschneider, M.D., 1898, p. 741 :—

"He left England in February, 1877, his destination being Shanghai. From this place he visited the Snowy Mountains near Ning Po, where he met with most of the Chinese plants introduced by Fortune, and then left for Japan. Having visited Osaka, Kioto, Lake Biwa, and the surrounding hills, he went on to Yokohama. He inspected all the celebrated nurseries for cultivated plants at Yokohama and Yedo, and introduced from thence to England many rare plants, especially Ferns and Maples. His special object of search being Coniferæ, he proceeded from Yokohama seventy five miles northward to Nikko, situated in the central mountains, where he saw magnificient Conifer forests. He rediscovered there Abies Veitchi, to which tree till then, some mystery appeared attached, and sent home living specimens of it. He discovered another interesting species of Fir, subsequently named after him. From Nikko, Maries walked overland to the shore, 500 miles, and then crossed over to the island of Yezo. From June to October, 1877, he spent on the east and west coasts of Yezo, travelling as far as Tokats, on the N. W. Coast, but his headquarters were at Horidzumi, on the S. W. Cape, where he made extensive botanical and entomological collections. The latter, over 20,000 specimens, were unfortunately lost by shipwreck. He left Yezo with his botanical collections in H.M.S. *Modest*, which landed him at Ningatu, on the N.W. coast of Nippon, in December, 1877. After an overland journey in the snow he reached Yokohama, and having shipped all his collections, sailed on Christmas Day for Hong-Kong. Thence he visited the Island of Formosa, landed at Tai wan-fu, and in a few days started for the interior. He arrived at the borders of the "savage country," but could not get to the totally unknown grand forest-clad mountains. He then tried the north of Formosa, but without success, and so went to Shanghai.

In the spring of 1878, Maries visited Chin Kiang and Kiu Kiang. From the latter place he went to some mountains about 25 miles south, to a place called "Dragon's Pool" (in the Lu Shan mountains). Here he found Liriodendron tulipiferum (see *Gardeners' Chronicle*, 1889, ii., 718), Larix Kæmpferi, Cryptomeria japonica, all immense trees, and also an extremely beautiful Lily, which Mr. Baker called Lilium lancifolium, Thbg. var. glorioides. Maries thinks that it is quite a distinct species, one of the handsomest for cultivation. At Kiu Kiang he had sunstroke, and was an invalid for two months. The summer of 1878 he spent again in Japan, in the north of Nippon, collecting seeds, particularly of Conifers. In December he left Japan and went to Hankow on the Y'angtze.

In the spring of 1879, he started for Ichang, 600 miles further up the river, where he had a glorious time amongst the gorges of the Y'angtze, above Ichang, where the great river rushes out of the mountains. Here he found Primula obconica, of which he procured large quantities of seeds, from which plants were raised by Messrs. Veitch. In the summer of 1879 he once more returned to Japan and collected all the evergreen Oaks, which he successfully sent to England, also the beautiful dwarf Bamboos, and that great curiosity, the Square Bamboo. Altogether he introduced about 500 living plants, and sent home large quantities of seeds of Coniferæ, Oaks, Maples, and other fine trees."

CYPRIPEDIUM × TRANSVAAL SUPERBUM.

The handsome Cypripedium which is shown in fig. 123 was exhibited by Messrs. Sander & Sons, St. Albans, at a meeting of the Royal Horticultural Society on November 4, and it then obtained an Award of Merit.

Fig. 123. CYPRIPEDIUM × TRANSVAAL SUPERBUM.

It is from a cross between C. Chamberlainianum and C. Rothschildianum, and exhibits distinct traces of the first-mentioned parent. Th upper sepals are pale green, heavily striped with deep brown or chocolate colour. The petals are long, and extend in a rigid horizontal position. They are pale green, spotted with dark purple, and the lip is rose-coloured, with yellow upper margin.

Lily of the Valley.—Some illustrations in Möller's *Deutsche Gärtner Zeitung* for September 27, are calculated to astonish our growers by reason of the enormous extent of the cultivation, the numbers of the staff employed, the refrigerating chambers, the packing for market, and other details, as seen in the nurseries of Mr. E. Neubert, Wandsbeck, near Hamburgh.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

NOVEMBER 4.—*Present:* Dr. M. T. Masters, F.R.S. (in the chair); Messrs. Worsley, Baker, Michael, Saunders, Bowles, Odell, and Hooper; Drs. Rendle and Cooke; Rev. G. Henslow, Hon. Sec.

Ergot, Prevalence of.—Mr. HOOPER observed that this disease was particularly abundant this season, and exhibited specimens on Cocksfoot and Rye-grass. It generally is frequent in wet autumns.

Apple-trees in Blossom.—He also referred to the occurrence of flowers on Apple-trees, a fact, elsewhere noted in the papers, due to the mildness of the weather. Dr. Masters observed that when such flowers occurred on spurs, they were instances of precocious flowering.

Tomatos and Bordeaux Mixture.—Mr. HOOPER also called attention to the advantages of using this fungicide on outdoor Tomatos, which were shown, when left to themselves, to have completely failed; but those sprayed bore at least half a crop this autumn.

Crocus, rare species.—Mr. BOWLES showed a blossom of C. speciosus var. Aitchisoni, which bore a fine pale-coloured flower; the country was not known whence it was received.

Cypripedium Malformed.—Mr. SAUNDERS showed a drawing of a flower having the labellum erect and one additional petal. Dr. Masters undertook to add further details.

Apple-leaf Black Mould.—Dr. M. C. COOKE reported as follows upon the Apple-leaves submitted for examination:—"They were badly diseased with the attack of a black mould new to the British Isles. The leaves were dead or dying at the ends of the branches, and the under surface sprinkled on the dead parts with black dots, which proved to be the tufts of conidia produced by Coniothecium Ouestieri [?] (Desm.), which was found and described in France in 1857 on leaves of Cornus sanguinea. The conidia are brown, very variable both in form and size, and muriformly septate, clustered in glomerules, and mixed with a few slender threads. This parasite has appeared so seldom that no experiments have been made upon it, but it is recommended to strip off and burn, and sweep from the ground all fallen leaves, so as to prevent the diffusion of the pest. Even when this is done, if there is any foliage left, it should be sprayed with one of the copper solutions to destroy the germinating powers of the conidia."

Flax Wilt.—Dr. Cooke communicated the following paper: "Since the last meeting of the Committee I have learnt that experiments have been undertaken in the N. Dakota experimental station (Bulletin No. 50) to ascertain the cause of the disease known as 'Flax Wilt' and 'Flax-sick soil,' a disease which appears to be known in Ireland, as well as in Belgium, Germany, and other Flax-producing countries of Europe. I may premise that it has long been known that Flax cannot be grown continuously for any long period upon the same soil, because then the soil becomes 'sick' and the Flax seedlings die off and do not produce a crop. The cause of this has hitherto been a mystery, mostly attributed to the exhaustion of the soil. The result of these experiments appears to be, not the exhaustion of any of the chemical constituents of the soil, but the prevalence of a minute fungus in the soil, which preys upon the débris of the previous year's crop, and attacks the young seedlings of the new year, causing them to wilt and die. The name of this new fungus is Fusarium lini.

Outgrowths on Potato Tubers.—Dr. COOKE supplied the following additional facts upon this disease, lately reported upon:—"It was attributed to a newly described fungus under the name of Chrysophlyctis endobiotica. Although at the time I advocated its decided affinity to the tumour produced on Beetroot; more recently specimens have been sent to Berlin, with the result that Dr. Magnus has not only confirmed this affinity, but has demonstrated that it is the same species, which is known as Œdomyces leproides (Trabut), so that the 'Beetroot tumour' and the 'Potato tumour' are caused by the same fungus. This should be noticed, since the form on Potatos has for two years been destructive in several localities in the British Isles, and is quite capable of infesting Beetroot in like manner."

Iris Black Mould.—Dr. COOKE also reports upon diseased Irises sent to the committee:—"Since the last meeting a plant of Iris ochroleuca has been submitted to me for examination. The roots were in a perfectly sound condition, but the leaves were affected in a similar manner to those of other specimens sent to the committee recently, and of which I find no record in the reports of our meetings. The leaves turn yellow and sickly, and then brown, dying towards the tips. Upon these brown patches occur sooty or blackish spots, often of considerable extent, rather velvety under a lens, which manifest the appearance of a black mould (Heterosporium). It occurs on the leaves of Iris, Freesia, Antholyza, and Hemerocallis, and is known not only in Europe, but at the Cape, New Zealand, and the United States of America; and will be found described in Massee's *Plant Diseases*, pp. 321 and 440, and figured in the *Journal of the Royal Horticultural Society* on plate v., fig. 20. Spraying with potassium sulphide is reported to check the disease, and all diseased leaves should be cut off and burnt. If these precautions are attended to, and the foliage is not watered, the disease may be controlled. Also spraying with ammoniacal copper solution checks the disease, after clearing away diseased leaves."

Grubs among Sedums.—Mr. SAUNDERS reported as follows on some specimens sent by Mr. Maynard, Wymondham, Norfolk: "The grubs sent with the enclosed letter are the grubs of one of the weevils, either the black Vine-weevil (Otiorhynchus sulcatus), or the clay coloured weevil (O. picipes), but the grubs of these species are so much alike that it is almost impossible to tell them apart. However, as the life history of both is exactly the same, it does not make much difference from a cultivator's point of view. The parent weevils lay their eggs at the roots of various soft-rooted plants, Sedums, Primulas, Begonias, Cyclamens, and Ferns, being great favourites. The weevils themselves are also very destructive to the foliage and tender shoots of Vines and many other plants, particularly Ferns and Dracænas. I do not know of any means of killing the grubs but picking them out from among the roots. Any insecticide that would kill the grubs, would certainly be equally destructive to the plant. The beetles are not often seen, as they feed at night, and hide themselves very carefully during the day. They may be caught by putting a white cloth under the plant that they are attacking before it becomes dark. If the plant is in a pot it is better, if possible, to lay it on its side; then, after it has been dark for an hour or so, throw a strong light suddenly upon the plants. This will generally cause the weevils to fall off, when they will easily be seen on the cloth; if they do not fall, give them a jarring shake, and search it well. Small bundles of dry moss or hay make good traps; they should be laid on the soil in pots, near the stems of the plants, or, in the case of creepers tied on to the stems or shoots, so that when the weevils are seeking shelter, they should find one close at hand. The traps should be examined every morning. These weevils are either black, and about half an inch in length, or of a dull, pale, yellowish-brown colour, and about half an inch in length, according to the species."

Partial Separation of Parental Characters in a Hybrid Orchid.—Mr. HURST sent a flower with the following communication: "A plant of Paphiopedilum × Canhami (P. superbiens × P. villosum), which hitherto has always produced normal flowers with me, has now produced the curious flower exhibited. One side of the lip or slipper is normal in colour, being evidently a fair blend between the parent species. The other side of the lip may be divided into three distinct areas: (1) a narrow band of rich brown-purple, as in the parent P. superbiens; (2) a broad band of greenish-yellow, as in the parent P. villosum; (3) the remainder of the lip being a normal blend between the two parents. We have here evidently a partial separation of the mixed 'blood' of the parent species, the result being a mosaic rather than a blend. It is interesting to note that the hairs within the lip are sharply separated, as in the colour, and there is also a slight tendency to separation in the colour of the dorsal sepal and the petals. Whether this partial 'sport' will prove permanent remains to be seen, though it is not very likely. We really know very little about the manner in which the cells of hybrids are determined and formed, but this particular case suggests that when the cells were being formed in areas (1) and (2), the parental determinants, instead of working together to form a blend, somehow separated, the P. superbiens determinants alone forming No. (1) area, and the P. villosum determinants forming the other (No. 2). Similar 'sports' have been recorded in the allied hybrid P. × Harrisianum (P. barbatum × P. villosum), for the history of which see Cypripedium × Dauthieri Rossianum, Rchb. f. in *Gardeners' Chronicle*, 1888, i., p. 425; C. × D. marmoratum, *Rev. Hort. Belge*, 1889, p. 241 (with plate); C. × Dauthieri × (dimidiate), *Gardeners' Chronicle*, 1895, i., p. 335, fig. 45, cf.; also *Orch. Rev.*, 1894, pp. 20, 147."

Acorns from the Cape.—Mr. HENSLOW showed specimens illustrating the great amount of variation occurring in the size and shape of acorns from trees growing in and near Cape Town. They are all from original importations from Europe of the common Oak. One tree was remarkable for bearing a large number of acorns, all of which had three embryos. They were cultivated by the Dutch more on account of the acorns for pigs' food than for timber, as this is rather inferior to English Oak. Numerous avenues have been planted in the colony.

Self-burial of Bulbs.—Mr. WORSLEY showed a bulb formed below the previous one; and had come to the conclusion that its position indicated the, so to say, intention of Nature to deepen the position of the bulb. It bore numerous contractile roots of the usual spindle-shaped form, which were strongly wrinkled at the base. Mr. Henslow called attention to a paper on this subject (*Bot. Gaz.*, xxxiii, p. 401) on Californian Liliaceæ, of which some bury their bulbs (as does Colchicum) by means of the rhizome alone, without contractile roots; while others do it entirely by aid of these organs.

Wireworm.—Mr. BAKER mentioned that these pests had been very troublesome this season, particularly where mineral fertilisers had been used. On a very poor chalky bank some Vetches were very badly attacked, especially on some long slips, which, for experimental purposes, had been dressed with potassic and phosphatic fertilisers. On these slips, fresh shoots were continually being produced and destroyed. Another field near, situate in the valley, was planted with Prince of Wales Peas, and some rows of these also received dressings of the same fertilisers. A fine crop resulted notwithstanding wireworm attacks. Turnips were drilled between the rows, and these were badly attacked, especially where the mineral fertilisers had been used for the Peas. Although the Turnips were badly pierced, they were much finer otherwise than on the rows where these fertilisers had not been used. It is admitted that much organic matter favours wireworm, but the attack was much more severe where the mineral fertilisers were used. It may be noted that the Vetch is not often much injured by wireworm. In the case of the Peas and succeeding Turnips, a possible explanation may be that the increased vigour of the Peas, induced by the minerals, largely increased the supply of combined nitrogen, and this, in conjunction with the residual minerals, produced more succulent Turnips, which were, therefore, more favoured by the pests."

REDHILL AND REIGATE.

A MUTUAL Improvement Association, numbering 110 members, has been established for the gardeners of Redhill and Reigate. At the meeting of the Association held on October 14 last, Mr. J. Gregory, photographer, Croydon, gave a lecture on the "Botanic Gardens, Kew," illustrating it with numerous lantern-slides; and at the second meeting Mr. J. W. Barks lectured on "Grape-Vines and Peaches."

CROYDON AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

OCTOBER 22.—A well-attended meeting was held in the society's room at the Sunflower Temperance Hotel, Croydon, on the above date, Mr. W. J. Simpson presiding.

An interesting paper by Mr. E. Lovett, Vice-President Croydon Natural History Society, on "How to Make an Alpine Garden" was read. Mr. Lovett described the habits of plants, as observed by himself upon the Swiss Alps, and spoke of the great pleasure derived from the possession of an alpine garden. The lecturer, by the aid of diagrams and photographs, illustrated the principles on which such a garden should be formed.

The lecture was listened to with much interest, and was followed by an interesting discussion.

BRISTOL & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

OCTOBER 30.—A most successful meeting of this Society was held at St. John's Rooms, Redland, on the above date, when Mr. J. H. Jarvis, of the Newport Gardeners' Association, gave a lecture on the "Cultivation of Pot Roses." Mr. E. H. Binfield occupied the chair, and there was a good attendance.

Prizes for six cut Roses were awarded. The 1st went

to Mr. J. C. Godwin (gr., Mr. McCulloch), and the 2nd to Mr. A. Baker (gr., Mr. Orchard).

A number of Certificates of Merit were awarded for Pears, for various Orchids, for cut specimens of Bamboos, &c.

The next meeting will be held on November 13, when Mr. E. H. Binfield will give a lecture on "Stove and Greenhouse Ferns."

READING & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

About 120 members assembled at the last fortnightly meeting of the above Association, when Mr. James C. House, of Westbury-on-Trym, gave a lecture on "Sweet Peas." In introducing the subject the lecturer asked the question, "What are the qualities of the Sweet Pea which gives it such a high position amongst flowers?" and answered it as follows: the wide range of colour, the softness of its tints, perfume, durability, grace of form, length of flowering season, and that the seed was within the reach of all. An interesting discussion followed.

The exhibits were numerous and interesting. Honorary:—Mr. G. Stanton, gr., Park Place, made a fine exhibit of Apples and Pears, correctly named; also a basket and two pedestals, standing about 2½ feet high, of beautiful specimens of Sweet Peas, illustrating the mildness of the season.

Mr. Barnes, gr., of Bearwood, staged three Melons, and Mr. J. Pound, gr., of Caversham, two dishes of Apples, splendid fruits for the season.

The prizes won in the recent essay competition were presented to the successful competitors.

LIVERPOOL HORTICULTURAL.

November 1.—The winter session of this Association began on the above date, when Mr. Stoney, gr., Camp Hill, Woolton, read an instructive paper on "The Cultivation of the Grape Vine," treating it in all its phases, training, stopping, forcing, &c. The chairman, Mr. Foster, who has for many years conducted these meetings, gave all members and friends a hearty welcome, and hoped ere long that better and more spacious accommodation would be obtained, for it was badly needed.

PLYMOUTH CHRYSANTHEMUM.

November 4.—This show was opened on the above date in the Guildhall, Plymouth, to which an annexe in the shape of a spacious marquee had been added in order to accommodate the numerous exhibits entered to compete for the handsome prizes offered, the value of which reached a total of over £200. Competitors monopolised almost the entire available space, and but little was available for the display of nurserymen's exhibits—a rare occurrence in flower shows nowadays.

In the premier cut bloom class for forty-eight Japanese, competition was keen, the 1st prize being won by Mr. F. S. Vallis, of Chippenham, who the same day carried off both the Holmes Memorial Challenge Cup, and 1st prize for blooms arranged in vases, at the National show at the Royal Aquarium. His stand contained a great many fine blooms, of which we may mention a few:—W. R. Church, Sensation, M. Louis Rémy, Australie, Calvat's '99, Bessie Godfrey, Nellie Pockett, Phœbus, Mrs. Mease, Ethel Fitzroy, Mrs. J. Lewis, M. Chenon de Leché, Mrs. J. Bryant, Mr. F. S. Vallis, and Mrs. Vallis, very fine. 2nd prize was won by Mr. G. Foster, of Teignmouth, with good blooms; 3rd prize by Mr. G. W. Drake, Cardiff.

For twenty-four Japanese, the 1st prize was won by Mr. W. M. Smith, Wivelscombe, who had fine blooms of Lord Ludlow, Mr. A. Barret, Kimberley, Australie, W. R. Church, Le Grand Dragon, Florence Molyneux, M. Louis Rémy, Miss Alice Byron, Madame Von André, Mrs. Coombes, and Pride of Madford; 2nd, Mr. F. S. Vallis; 3rd, Mr. B. H. Hill, Crediton.

For twelve Japanese, the 1st prize was won by Mr. W. M. Smith, with among others G. W. Palmer, Australie, Gustave Henry, Jane Molyneux, Lord Ludlow, Miss Alice Byron, Mr. A. Barret, and M. Louis Rémy; 2nd, Sir John Shelley, Crediton; 3rd, Mr. J. R. Gulson, Teignmouth.

For six Japanese, white.—1st, Mr. T. Martin, with superb blooms of Mrs. G. Lewis; 2nd, Mr. G. Foster, with Madame Carnot; 3rd, Mr. F. Bradshaw, with Madame Carnot.

Six Japanese, any other colour.—1st, Mr. F. Bradshaw, with Mrs. Mease; 2nd, Mr. J. R. Gulson, with Le Grand Dragon; 3rd, Mr. G. Foster, with Mrs. Mease.

Six incurved Japanese.—1st, Mr. J. R. Gulson; 2nd, Sir John Shelley; 3rd, Mr. G. Foster.

Twelve blooms, Anemones.—1st, Sir J. Jenkins, Mannamead; 2nd, Mr. F. Bradshaw.

For twelve vases of single Chrysanthemums, 1st prize was won by Mr. G. Foster; 2nd, Mr. S. H. Phillips; 3rd, Mr. F. Bradshaw.

In the cut bloom classes restricted to "residents within 15 miles of Plymouth," all the premier honours were carried off by Mr. T. Martin, the winner of the premier prize for six white Japanese in the open classes, who staged splendid blooms, which would have taken prizes in the unrestricted classes. In twenty four Japanese we noted fine blooms of Lord Ludlow, Mrs. Coombes, M. Louis Rémy, Lord Roberts, Phœbus, Marquise V. Venosta, Meredith, Royal Standard, Mrs. G Lewis, Mrs. Mease, Australie, and Madame Carnot; 2nd, Admiral Sir A. Buller, Plympton; 3rd, General Sir R. Pole Carew, Antony House.

Groups.

The President's Silver Cup, for the best group of foliage and flowering plants, was won by Messrs. J. R. Chalice & Sons, nurserymen, Plympton, who staged a fine collection, containing species of Bamboos, Lilies, Orchids, Carnations, Tuberoses, Ferns, Palms, and other foliage plants.

For stove and greenhouse plants there were four entries, the 1st prize being won by Messrs. J. Webber & Sons with a varied collection, consisting of Orchids, Euphorbias, Eucharis, Salvias, Bouvardias, tall Palms, Codiæums, Dracænas, Asparagus, &c. 2nd, Admiral Parker, Delamore; 3rd, Mrs. Dormer.

Chrysanthemums in groups, 1st, Mrs. Dormer; 2nd, Messrs. J. Webber & Sons: 3rd, Sir J. Jenkins.

Many prizes were given for Chrysanthemums in pots, for Primulas, Cyclamens, Roman Hyacinths, Pelargoniums, Orchids, Begonias, and Salvias; and fruit and vegetables were largely represented by excellent collections, the premier honours in the two sections falling respectively to Sir John Shelley and Mr. F. Bradshaw.

Mr. H. Hodge, St. Austell, had on view a large number of tuberous Begonia blooms single and double, which deservedly received a Certificate of Merit. Messrs. Isaac House & Son, Westbury-on-Trym, Bristol, showed a fine collection of Violets, of which La France and Luxonne were remarkable for their size. Mr. W. J. Godfrey, Exmouth, staged an interesting assortment of new Chrysanthemums of his own raising, a collection of self winter flowering Carnations of merit, and very fine zonal Pelargoniums. Messrs. R. Veitch & Son, Exeter, and Messrs. Rossiters, Ltd., Paignton, had collections of Apples; and Messrs. J. Tomlinson & Sons, Devonport, showed Apples, Pears, and Grapes.

Prizes were given for floral displays, and three firms competed, exhibiting a lavish profusion of hothouse and other flowers, arranged in shower-bouquets, wreaths, harps, stars, crosses, flags, and all manner of devices: 1st, Mr. J. R. Williams; 2nd, Messrs. Hender & Sons.

WITNEY, OXON.

November 4.—The annual exhibition of Chrysanthemums, fruits, and vegetables, was held at the Corn Exchange on the above date. The Chrysanthemum classes were not keenly contested, but the quality of the plants and blooms were exceptionally good. In the groups of Chrysanthemums, Mr. W. T. Felton, was a good 1st with strong, healthy plants, and well finished blooms.

In cut blooms Mr. J. G. Ravenor, had an excellent exhibit of twenty-four Japanese. The chief prize-winners in the fruit classes were Messrs. C. Walter, J. Haley, C. Haley, and Rev. Jenkyn.

The exhibits of vegetables were excellent, Messrs. White, Batt, Early, Gusk, and Mrs. Pembury, were the chief prize winners.

In the classes for single and double flowered Primulas, Messrs. Batt, Jacob, Early, and Foreshew (?) were to the front.

Mr. Wastie, of Eynsham, staged over forty dishes of Apples in good condition, and distinct varieties. Mr. J. Akers, Stanton Harcourt, staged a fine lot of Marie Louise, and Princess of Wales Violets.

The stage was relieved with a miscellaneous assortment of Ferns, Palms, Crotons, and Chrysanthemums from Eynsham Hall, arranged under the supervision of Mr. J. Anderson, head gardener. The business arrangements were in the hands of Messrs. Felton & Hayter (Hon. Secs.), who did their work well. *S. H.*

BOURNEMOUTH AND DISTRICT HORTICULTURAL.

November 4, 5.—The above society held its sixteenth annual show of plants, cut blooms, fruit, and vegetables in the Volunteer Drill Hall on the above-mentioned dates—an exhibition which, as regards the quality of the exhibits generally, was equal, if not superior, to any hitherto held by the Society.

Open Classes.

In the class for thirty-six cut blooms, Japanese, not more than two of any one variety, there was only one entry, this coming from Mr. L. J. Newell, gr. to W. H. Dore, Esq., Branksome Park. These were a grand lot of flowers, large, of fine depth, even, and very fresh-looking. The exhibitor was awarded a 1st prize.

The best twelve Japanese, distinct varieties, were shown by Mr. J. Collins, gr. to Sir John Groves, with a good even dozen of blooms; 2nd, Mr. W. Squire, gr. to Col. C. M. Churchill, Wimborne. The last-named exhibitor secured 1st for six Japanese.

Mr Newell was 1st for four vases of Japanese Chrysanthemums, distinct, five blooms of one variety to be shown on long stems, and own foliage in each vase. Mr. G. W. Simmonds, gr. to Mrs. Arthur Wiggins, Christchurch, was 2nd, both staging good and attractive exhibits, which well illustrated the adaptability of the Chrysanthemum for this style of floral decoration, the long stems admitted of the individual blooms being seen to advantage, Madame Carnot, Mr. T. Carrington, and Mrs. Mease being the varieties thus shown.

A fine bloom of Miss Edith Pilkington secured for Mr. Newell the prize offered for the premier bloom (Japanese) of the exhibition; Lady Isabel, shown by Rev. C. H. Burrows, being the premier incurved bloom.

The prize for the best illustrative collection of cut blooms, staged with or without foliage in specimen glasses, epergnes, or stands, at the option of the exhibitor, on a table space of 5 feet by 4 feet: 1st, Mr. C. Mantle, gr. to E. F. Telfer, Esq.; 2nd, Mr. C. Phillips, gr. to T. J. Hankinson, Esq.—both showing good, even, fresh blooms of the respective types of the Chrysanthemum.

The prize for the best designed and most tastefully arranged floral centre for a dinner-table was awarded to Mr. R. Chamberlain, florist, Lansdowne, Bournemouth; Miss Edith Cavanagh Murphy being 2nd, and Mr. C. Phillips 3rd.

Group of Chrysanthemums and foliage plants arranged on a space of 150 square feet, 1st, Mr. W. Squire, who had an effectively-arranged group of well-grown and well-flowered plants.

Fruit.—Grapes. Mr. J. Collins was 1st for three bunches of Black Grapes, and Mr. W. Mitchell, gr. to J. W. Fleming, Esq., Chilworth Manor, Romsey, 2nd, both staging creditable bunches of Mrs. Pince's Black Muscat. In the corresponding class for White Grapes, Mr. Mitchell was easily 1st, staging three middle-sized bunches of Muscat of Alexandria, large of berry, even in size, clean, and of fine colour; Mr. C. Cox, gr. to Lord Eustace Cecil being 2nd with the same variety.

Apples and Pears.—Mr. J. Collins had the best six dishes of Apples, staging good-sized, even fruits of Blenheim Orange and Orange Pippins, Warner's King, Golden Spire, Cox's Pomona, and Peasgood's Nonsuch; and Mr. Mitchell was 2nd. The prizes offered for a like number of dishes of Pears, distinct varieties, five fruits to a dish, were taken by the same exhibitors, and in the same order as in the previous class, the varieties shown in Mr. Collins' 1st prize lot being Beurré Diel, Doyenné du Comice, Marie Louise, Beurré Superfin, Beurré Langelier, and Pitmaston Duchess.

Plants in Pots.—The prizes for three bushes of Japanese Chrysanthemums went to Mr. Newell and Mr. C. Phillips, in that order; Mr. W. Palmer, gr. to Sutcliffe Field, Esq., Parkstone, had the best specimen plant of any variety; and Mr. Newell was 2nd, both staging creditable plants. Mr. George Taylor, gr. to R. Crompton, Esq., had the best nine plants for dinner-table decoration, staging Codiæums, Dracænas, Pandanus Veitchi, &c.; Mr. Squire was 2nd. Mr. Phillips had the best six Primula plants; Mr. G. Taylor having the 2nd best half-dozen.

Vegetables.—Mr. Mitchell had the best collection of eight kinds of vegetables, staging fine produce, his Leeks, Onions, and Tomatos being especially good; the 2nd and 3rd prizes going to Mr. Newell and Mr. Squire respectively.

Local Classes.

The best groups of Chrysanthemums arranged on a space of 50 square feet were contributed by Mr. Newell and Mr. Palmer, both exhibitors putting up well-grown and finely flowered plants

Mr. Phillips and Mr. Newell were 1st and 2nd respectively for three bush plants.

Mr. Barge, gr. to the Rev. C. H. Burrows, and Mr. Phillips staged the best half-dozen winter-flowering Begonias, in the order in which their names appear, with finely flowered plants of Gloire de Lorraine.

Fruit.—Mr. Cox had the best two bunches of black Grapes, staging good Gros Colmar; Dr. H. G. Lye taking 2nd prize with Black Alicante.

Mr. Cox was also an easy 1st in the class for white Grapes, with fairly good bunches of Muscat of Alexandria.

Vegetables.—Some good productions were forthcoming in the contests for the special prizes offered by Messrs. Sutton & Sons, Reading, by Mr. John Swaffield, Lansdowne, Bournemouth; Messrs. Toogood, and other traders.

SOUTHAMPTON HORTICULTURAL.

November 4, 5.—The annual autumn exhibition, held in Victoria Hall, was in all respects worthy of its position in the Chrysanthemum world. Plants were not numerous, but they were of fine quality, and in the group class the rivalry was of the keenest.

Mr. C. Hosey, gr. to J. C. E. D'Esterre, Esq., Hill-

field, Southampton, took the 1st prize, with dwarf, well-flowered, well-arranged plants; and Mr. B. HURLEY, Masonic Hall, Woolston, the 2nd. Mr. C. HOSEY had the finest plants suitable for conservatory decoration, having the varieties R. Hooper Pearson, Miss Alice Byron, and Charles Davis; and Mr. C. DYMOTT, florist, of Millbrook Road, Southampton, was the next best. This exhibitor was successful with four bush specimens: and Mr. C. HOSEY, 2nd.

Groups of miscellaneous plants were fairly well shown, and Mr E WILLS, florist, Southampton, was 1st; and Mr. T. Hall, gr. to Sir S. MONTAGU, Bart., Southampton House, 2nd.

CUT BLOOMS.

The competition in these classes was severe. For twelve Japanese varieties, shown in triplets, the chief prize consisted of a Victorian Challenge Trophy, with a substantial sum of money added. The winner was Mr. G. Hall, gr. to LOUISA Lady ASHBURTON, Melchet Court, Romsey, with fine blooms, and he was closely followed by Mr J. Dawes, gr. to Mrs. OGILVIE, Hambledon, Cosham. There were three entries. The best twenty-four Japanese blooms were those which were shown by Mr. T. Nobbs, gr. to the KING, at Osborne; the next best were those shown by Mr. G. HALL. Mr. NOBBS, was likewise 1st for eighteen Japanese, showing well developed blossoms of popular varieties. Mr. DAWES was 1st with twelve blooms, and Mr. NOBBS, 2nd. Mr. G. HALL had the best twelve blooms of incurved varieties, and Mr. J. LOVE, Cowes, was 2nd.

In the amateurs classes, the flowers were but little inferior to many in the open classes. Mr. E. BROWN, Alma Road, Southampton, was the most successful, taking 1st for twelve Japanese incurved varieties, and for eighteen, and also for twelve in any other section. Mr. BROWN was 1st for four varieties shown in threes in vases, winning with examples that showed great cultural skill.

The ladies classes were very attractive. The most tastefully arranged vase of Chrysanthemums, Ferns, &c., which took the prize, was shown by Miss SNELLGROVE, 10, Oxford Road, Southampton. Miss WADMORE, was 1st for a basket of autumn leaves and berries.

Fruit was plentiful and good.

NATIONAL CHRYSANTHEMUM.

AMATEURS.

NOVEMBER 4, 5, 6.—The show, as a whole, has been dealt with in a former issue. We now add a few comments on the amateurs' classes, but the varieties in these being similar to those already mentioned in the open classes, we need only refer to the more important.

JAPANESE VARIETIES.

The best exhibit of eighteen Japanese blooms, distinct, was from Mr. J. Childs, gr. to Mrs. Foss, The Priory, Totteridge, who showed the varieties Mutual Friend, Ella Curtis, Lord Ludlow, and Mrs. White Popham, very well; the 2nd and 3rd prizes being won respectively by Mr. A. Page, gr. to G. W. KILNER, Esq., Ravenscroft, North Finchley, and Mr. C. H. Martin, gr. to Mrs. LANGTON, Raymead, Hendon, N.W.

A good collection of twelve blooms was shown by Mr. M. Rayment, gr. to W. BEECH, Esq., North Ockendon, Romford, whose bloom of W. R. Church was shown as almost perfectly reflexed; yet next to this was a much-twisted specimen of Mrs. Barkley; Chas. Longley was excellent in colour. 2nd, Mr. Leonard Gooch, gr. to T. WICKHAM JONES, Esq., South Norwood; and 3rd, Mr. A. Page, gr. to G. W. KILNER, Esq, Ravenscroft, North Finchley.

There were as many as ten collections of six blooms, distinct, the 1st prize being obtained by Mr. A. Robertson, gr. to F. J. YARROW, Esq., 18, Abbey Road, St. John's Wood, who showed the varieties W. R. Church, Australie, Mrs. White Popham, Calvat's Sun, Madame R. Cadbury, and Mafeking Hero. The specimens were of very good quality, and the coloured ones highly developed. 2nd, Mr. H. Pestell, gr. to F. S. WIGRAM, Esq., Elstow, Bedford; and 3rd, Mr. J. CHILDS.

Of three collections of six blooms of one variety of Japanese, an exhibit of W. R. Church, from Mr. A. Robertson, gr. to F. J. YARROW, Esq., 18, Abbey Road, St. John's Wood, was placed 1st. The blooms were of good size and colour, and were shown naturally.

In the classes for amateurs in Division II., Mr. A. R. KNIGHT, 63, Hardinge Road, Ashford, Kent, won 1st prize for 18 Japanese blooms, distinct; and Mr. THOS. SMITH, Cobbold Road, Leytonstone, 2nd prize. The best exhibit of twelve blooms in the same division was from Mr. M. SILSBURY, Providence, Sandown, Isle of Wight; and Mr. GEO. HEAL, Holly House Compton, Guildford, was 2nd.

Mr. E. JONES, 51, Bower Street, Bedford, had a pretty collection of six blooms, distinct; 2nd, Mr. T. SHARPE, 1, Railway Terrace, Stone, Greenhithe, who had a very richly coloured crimson reflexed variety, named Royal Standard

For a collection of twelve incurveds, Mr. T. SHARPE, 1, Railway Terrace, Stone, Greenhithe, won 1st prize; and Mr. D. B. CRANE had the best six bunches of Pompons.

FLORAL ARRANGEMENTS.

The principal class in the amateur section for floral arrangements was one for a display of blooms of decorative varieties on a space of 6 feet by 3 feet, the 1st prize being offered by Mr. PERCY WATERER. Mr. D. B. CRANE won the premier award with an attractive exhibit, including Japanese, reflexed, Pompon, and single-flowered varieties; 2nd, Mr. PERCY L. JOHNSON, North Gate, Bishops Stortford.

The following class was somewhat similar, but the exhibitor could only be a lady, and Mr. Percy Waterer provided the 1st prize of a Challenge Cup and a Silver-gilt Medal. Mrs. D. B. CRANE won this with an exhibit in which most of the flowers were displayed in vases, and these were relieved by the inclusion of a silvered rustic stand as a centrepiece. The colours of the flowers included only shades of pink, white, and shades of bronze colour approaching to red. 2nd, Mrs. A. TAYLOR, 5, Vernon Terrace, East Finchley.

The best hand-bouquet of flowers was shown by Mr. E. H. Chitty, gr. to T. HARDY, Esq, Chomeley Lodge, Highgate; and the best vase of blooms of a Japanese variety, by Mr. E. JONES, 51, Bower Street, Bedford.

CHELTENHAM ROOT, FRUIT, AND CHRYSANTHEMUM.

NOVEMBER 5.— The thirty-second annual show of the Cheltenham Root, Fruit, and Chrysanthemum Society, was opened at the Winter Gardens, Cheltenham, on the above date. There were 41 field entries, 114 root specimens, and 21 grain. In the flower, fruit, and vegetable classes, the entries totalled 251 as against 270 in the previous year, the fruit classes not attracting so many exhibitors as previously, no doubt owing to the wet season and the scarcity of fruit. The specimens shown, however, were of first-class quality. There was a falling off in the general quality of the Chrysanthemums.

Mr. H. G. BENNETT (gr., Mr. Bates), won the Corporation Cup for incurved varieties; and Mr. J. HORLICK, Cowley Manor (gr., Mr. Maddocks), won both the Hicks-Beach Cup for the best group, and the Rogers Cup for the best circular group. The name of Mr. H. G. BENNETT figured again and again in the plant classes, his chief opponents being Mr. H. O. LORD and Mr. J. PILGRIM, the latter of whom ran him very close. In addition to the Cup winner, Dr. FERGUSON, PATES and SHARPE, and Mr. MARSH, had beautiful groups.

In the classes for cut blooms, the names of Mr. LORD and Mr. HORLICK, were again prominent.

The cottager's Chrysanthemums were extremely creditable. Messrs. CYPHER & SONS, added much to the general effect of the show by their stand of Orchids and Begonias, not for competition; and the Rev. G. COVENTRY was represented by an interesting display of Primulas.

In the fruit classes, Mr. T. SPENCER, Ross; The Earl of COVENTRY, and the Rev. G. COVENTRY, secured the principal awards for Apples, Pears, and Grapes. *F.P.*

TORQUAY CHRYSANTHEMUM.

NOVEMBER 5.—The Torquay Gardeners' Association held their annual Chrysanthemum show on the above date, in the large hall of the Bath Saloons, which was well filled with cut blooms and groups contributed by residents in the town, and by nurserymen's exhibits. Unfortunately, owing to the attendance at the last few shows having been very limited on account of wet weather, and to the unaccountable paucity of subscribers to the Association's funds, no money was available for prizes, but want of the incentive of competition had little or no effect on the character of the display; the honorary exhibits, though lacking the usual prize-cards, being fully up to the level of former years.

Over 200 fine cut blooms of the usual exhibition varieties were staged, and an excellent central group of Chrysanthemums was contributed by Dr. FORD EDGELOW, as well as five attractive groups of stove and greenhouse plants by other supporters of the Association, while four artistically decorated dinner-tables added interest to the show, one in which sprays of small yellow Chrysanthemums were associated with a few pale pink flower-panicles of Begonia Gloire de Lorraine being specially worthy of commendation.

Messrs. CURTIS, SANFORD & Co., Devon Rosery, Torquay, staged a good collection of Chrysanthemum-plants, fronted by retarded Spiræas, Lily of the Valley, and Lilium longiflorum, as well as other flowering and foliage plants; and also showed three boxes of Rose blooms cut from the open, a very creditable display so late in the year. From the same Company's fruit farm came a capital selection of Apples, as well as Tomatos, Cucumbers, and Chilis, interspersed with many varieties of Violets, flowering sprays, and Strawberry Royal Sovereign from the open.

Mr. W. B. SMALE, Torquay, had an attractive stand of Chrysanthemums, Salvias, Cactus Dahlias, hybrid Streptocarpus, and other plants. Messrs. R. VEITCH & SON, Exeter, showed Solanum Wendlandi, Romneya Coulteri, Acacia platyptera, Scabiosa caucasica magnifica, Amaryllis, Belladonna speciosa purpurea, Primula Isabellina, Nerines, and other plants in bloom. Mr. W. H. ALFORD had Begonias Turnford Hall, and Mrs. Leopold de Rothschild. Mr. J. HEATH, Kingskerswell, showed Violets in great variety, and Mr. W. J. GODFREY, Exmouth, exhibited Carnations, zonal Pelargoniums, and new Chrysanthemums.

MARGATE HORTICULTURAL.

NOVEMBER 5, 6.—The sixteenth annual exhibition took place at the Hall-by-the-Sea on the dates mentioned. The groups of Chrysanthemums, miscellaneous groups, and floral decorations, always important features at this show, were numerous and keenly contested, and the exhibits generally were of great merit.

The 1st prize, a Silver Cup of the value of fifty guineas, and £6 in money, offered for the best group of Chrysanthemums and foliage plants, was deservedly won by Mr. Cornford, gr. to the donor, Capt. POWELL COTTON, Quex Park, Birchington, the Cup having now been won by the same exhibitor for three years in succession it becomes his sole property. On this occasion Mr. CHAPMAN, nurseryman, Ramsgate, was a good 2nd. Mr. Blackwood, gr. to Lord DECIES, Beresford Lodge, Birchington, was 1st in the miscellaneous groups, exhibiting nicely flowered Orchids, Lilies, Palms, Codiæums, &c.; 2nd, Mr. CORNFORD. There was a good display of cut flowers from various exhibitors, Mr. CORNFORD taking the lead in several of the principal classes. Amongst other successful exhibitors in the cut bloom classes mention should be made of Mr. J. Bond, gr. to E. S. DRAX, Esq., Olantigh Towers, Wye; Mr. E. PULLINGER, and Mr. A. ROSS, Westgate. Miss NELLIE BROCKMAN, of Addington, was 1st for an epergne filled with Chrysanthemums and foliage. Baskets of flowers, sprays for personal adornment, bouquets, wreaths, &c., were numerously shown.

There was a good display of hardy fruits; whilst on the contrary, Grapes were of very poor quality. In the leading classes for Pears and Apples, Mr. Burgess, gr. to J. T. FRIEND, Esq, Northdown, Margate, took several prizes. Mr. Cornford, Messrs. Bunyard, Maidstone, and others sent collections of Pears and Apples.

HEREFORD FRUIT AND CHRYSANTHEMUM.

NOVEMBER 5, 6.—The show held by this society in the Shire Hall, Hereford, on the above date was in every way a good one, the display of Apples and Pears, more especially, considering the bad season. The schedule provides upwards of seventy classes for these fruits alone, and in almost every case they were well filled. Grapes in some instances were splendidly shown; and the collections of vegetables, for which Mr. Wilson, Commercial Street, Hereford, offered special prizes, were excellent. It may be remarked, however, that these latter exhibits would have been more interesting and instructive had the varieties been named. The classes devoted to the Chrysanthemum were generally well filled with creditable exhibits.

OPEN CLASSES.

Pears were perhaps collectively better shown than were Apples, the class for twenty four varieties being very fine. Here, Mr. Spencer, gr. to H. C. MOFFATT, Esq., Goodrich Court, Ross, was 1st with Beurré Bosc, Beurré Hardy, Beurré Baltet Père, Beurré Superfin, Doyenné du Comice, Crassane, Winter Nelis, and Marie Louise, as some of his best dishes. Mr. Humphries, gr. to the Earl of CHESTERFIELD, Holme Lacy, Hereford, followed closely with Brown Beurré, C. de la Cour, Beurré Bosc, Beurré Superfin, Beurré d'Amanlis, Red Doyenné, &c.

For twelve dishes, three excellent sets were staged; the 1st place being secured by Mr. J. C. Jones, gr. to H. C. LUTWYCHE, Esq., Kynaston, with excellent dishes of Doyenné du Comice, Marie Louise, Huyshe's Victoria, Pitmaston Duchess, Conseilleur de la Cour, Beurré Superfin, Beurré Hardy, &c.; Mrs. BLASHILL, Bridge Sollars, Hereford, who followed, had good fruits of Doyenné Boussoch, Beurré Hardy, Beurré Bachelier, &c.

A pleasing departure from the usual mode of staging Apples was made in the class for fifty distinct varieties, decorative plants being arranged among the dishes of fruit. In this class Mr. WATKINS, who usually exhibits strongly, was not present. The KINGSCLERE NURSERY Co., however, took the lead, with a splendid lot of clean, well-coloured fruit, including Egremont Russet, Wheeler's Russet, Allington and King of the Pippins, Court Pendu Plat, Wealthy, Beaumann's Red Reinette,

Mabbott's and Worcester Pearmains, &c. Messrs. PEWTRESS, BROS. followed closely with nicely staged fruit; their leading dishes comprised Adams' Pearmain, Wealthy, Ribston and King Pippins, Cellini, Annie Elizabeth, Newton Wonder, Bramley's Seedling, Tyler's Kernel, &c. Mr. GRINDROD, Whitfield, staged, too, a remarkably good table of leading varieties.

A class for thirty distinct dishes only brought one exhibitor, Mr. R. M. WHITING, Credenhill, Hereford, who staged a very creditable collection, including Allington, Wormsley Grange, and King's Acre Pippins, Worcester and Hormead's Pearmain, Cornish Aromatic, Blenheim Orange, Newton Wonder, Queen Caroline, Bismarck, &c.

AMATEUR CLASSES.

In a class for twelve culinary and twelve dessert kinds, several good entries were made. The 1st prize deservedly fell to Mr. W. Jones, gr. to C. H. HAZLEHURST, Esq., Morton Court, with, as his leading varieties, Mrs. Baron, Warner's King, Crimson Custard, Tyler's Kernel, Worcester Pearmain, King of the Pippins, and Egremont Russet; Mr. J. WOOTTON, Byford, Hereford, followed closely with other favourite varieties, including Wealthy and Allington Pippin.

The class for twelve culinary varieties made a big display, and the competition was close. Mr. Nunn, gr. to E. WOODHOUSE, Esq., Burghill Court, was 1st, his fruits of Hanwell Souring, Beauty of Kent, Bramley's Seedling, Dumelow's Seedling, and Annie Elizabeth being very fine; Mr. W. JONES was a close 2nd.

Mr. SPENCER was a good 1st for eight dishes of dessert Apples, showing mostly old favourites; Mr. WOOTTON was placed 2nd; and Mr. Davies, gr. to W. C. KING-KING, Esq., Bodenham Manor, was 3rd.

There were eight exhibitors in the class for eight dishes of Pears, which brought Mr. Currie, gr. to the Rev. G. H. DEVENPORT, Foxley, to the front, with fine fruits of Fondante d'Automne, Emile d'Heyst, Marie Louise, Durondeau, Beurré Bosc, B. Diel, &c; and 2nd, Mr. Loston, gr. to the Rev. H. BRIERLEY, Bridston Vicarage. In a class for a dish of Apples of recent introduction, Mr. WHITING was placed 1st with Allington Pippin; Mr. WATKINS 2nd with Vicar of Beighton, and Mr. WOOTTON 3rd with Royal Snow.

CHAMPION CLASSES.

Mr. GRINDROD was 1st with a grand bunch of Gros Colman Grape, the best bunch; Mrs. BLASHILL with huge Pitmaston Duchess Pears, the finest dish; and Mr. SPENCER won both the prizes for the best dish of dessert and culinary Apples.

VEGETABLES.

The collections of ten varieties staged for Mr. Wilson's prizes were excellent, there being close competition between the six collections shown. Mr. Froggatt, gr. at Belmont, who had good produce, was 1st; Mr. Davies, gr. to W. C. KING-KING, Esq., 2nd; and Mr. GRINDROD, a close 3rd.

GROUPS OF PLANTS.

Flowering and ornamental foliage plants occupying an area of 10 feet by 7 feet, brought two fine groups of capital plants, tastefully arranged, and Mr. Fox, gr. to Sir H. COTTERELL, secured the 1st prize with Amaryllis, Euphorbias, Richardias, Codiæums, Palms, Pandanus, Dracænas, &c. Mr. C. WHITING, White Cross Nursery, Hereford, was 2nd. Mr. WHITING was the sole exhibitor of a group of Chrysanthemums arranged, and deservedly took the 1st prize.

CUT BLOOMS OF CHRYSANTHEMUMS.

With twenty-four Japanese Mr. Lovelock, gr. to W. FOSTER, Esq., Brockhampton Court, Hereford, was deservedly placed 1st for good blooms of Mons. L. Rémy, Loveliness, Godfrey's King, W. R. Church, Mrs. Coombes, &c., and was followed by the Rev. H. BRIERLEY.

There were a number of minor competitions in the classes for cut blooms, bouquets, wreaths, and other florist's objects, and Roses, Orchids, and Carnations were tastefully shown, adding greatly to the attractions of the show.

CARDIFF CHRYSANTHEMUM

NOVEMBER 5, 6.—A successful show was held in the Park Hall, Cardiff, and a slight falling off in the entries was compensated by the extra good quality of the exhibited objects.

Cut blooms receive much encouragement, the prizes being good, and the chief class, that for twenty-four Japanese vars., distinct, offers really handsome ones. Mr. W. DRAKE, Cathays Terrace, Cardiff, secured the 1st prize with heavy, finely-grown blooms; and Mr. J. Howe, gr. to G. WILLIAMS, Esq., Manor House, Cardiff, was an excellent 2nd.

Mr. DRAKE was 1st for twenty four incurved varieties, having middle sized, well-finished blooms of typical varieties; Mr. RITCHINGS coming in a close 2nd.

Twelve Japanese blooms were best from Mr. Townsend, gr. to H. PITT, Esq., Abergavenny, who had very excellent examples; and Mr. Milner, gr. to Miss TALBOT, Margam, was 2nd.

The competition among growers in Cardiff was keen, and the blooms shown left little to be desired. The best twenty-four Japanese were shown by Mr. E. A. Parsons, gr. to Mrs. J. D. GUNN, Newport Road, Cardiff; who was followed closely by Mr. J. J. Graham, gr. to A. T. STEPHENS, Esq., Penarth, who was also 1st for twelve Japanese, and Mr. PARSONS for twelve incurveds, with really good examples.

Single-flowered varieties were capitally staged.

In objects of the florists' art, Mr. W. TRESEDER, Cardiff, was unapproachable, and carried all before him, except one for a bouquet of Chrysanthemums, in which Mr. R. CROSSLING, nurseryman, Penarth, was 1st, with a graceful bouquet of blooms of Source d'Or.

Chrysanthemum plants were fewer than usual at this show, but they were of good quality.

Mr. W. TRESEDER was 1st for a round group of Chrysanthemums, having an edging of foliage plants; and Mr. W. HATHERDALE, Roath, was 1st for a smaller group, that showed much skilful culture and good taste in the arranging of the materials.

Mr. J. BASHAM, Bassaleg, showed hardy fruit in quantity; Cactus and Pompon Dahlias were abundantly shown by Mr. W. TRESEDER; and Mr. S. TRESEDER had a group of lovely Roses in bunches. Messrs. CYPHER'S Orchids gave a desirable variety to the show.

NEWPORT, MONMOUTHSHIRE, HORTICULTURAL.

Nov. 6.—The fourteenth annual autumn exhibition, which was held in the Gymnasium, if not so large as on some previous occasions, was a creditable display.

The class about which most interest centres at Newport was that for twenty four blooms of Japanese varieties, the highest prize for which is a Silver Challenge Cup, together with a money prize. There were three competitors, and as neither of the previous winners were successful this year, the interest at next year's exhibition will be enhanced by the uncertainty as to the personality of the three cultivators to whom the prize will be awarded. Mr. J. Duff, gr. to Mrs. WILLIAMS, Newport, secured the coveted award with a stand of heavy blooms, conspicuous among which were the varieties Mons. Louis Rémy, Madame Carnot, Calvat's '99, Australie, Matthew Smith, Mrs. J. L. McKellar, Mrs. J. Bryant, and Phœbus. Mr. J. J. Graham, gr. to A. T. STEPHENS, Esq., Newport, was 2nd; and Mr. DRAKE, Cardiff, 3rd.

The best twelve Japanese blooms were shown by Mr. DUFF, Mrs. Greenfield and Nellie Pockett being especially good blooms in his stand; Mr. G. Richardson, gr. to Sir H. M. JACKSON, was a close 2nd.

The competition in the local classes was even keener, and very creditable flowers were shown by amateurs and cottagers.

The most notable group of Chrysanthemums and foliage plants came from Mr. J. Pegler, gr. to H. J. DAVIS, Esq., who was 1st. Mr. PHILLIPS was 1st with a bright group of Orchids, Codiæums, Palms, and Ferns, effectively displayed, being closely followed by Colonel WALLIS.

Fruit was well shown, and Mr. J. BASHAM, Bassaleg, exhibited a large quantity in the non-competitive class.

EXETER HORTICULTURAL.

NOVEMBER 6.—The Devon and Exeter Horticultural Society's Chrysanthemum show was opened on the above date in the Victoria Hall. The cut blooms made a fine show, and there was strong competition for the Silver Cup offered for thirty-six Japanese. This prize was won by Mr. F. S. VALLIS, the victor at the Aquarium and at Plymouth. His stand contained among other fine blooms Bessie Godfrey, Mr. C. Longley, Ethel Fitzroy, Mrs. Vallis, Sensation, Mrs. Barkley, Paolo Radaelli, Mrs. Pockett, W. R. Church, Mrs. G. Lewis, Mrs. J. Bryant, Mrs. G. Mileham, Phœbus, Edwin Molyneux, Mme. Waldeck-Rousseau, Mr. F. Carrington, and Marquise V. Venosta; 2nd, Mr. W. MACADAM SMITH; 3rd, Mr. H. N. HARRISON.

For thirty-six Japanese Chryanthemums, twelve distinct varieties in vases, Sir D. DUCKWORTH-KING was 1st; 2nd, Mrs. HAMMOND-SPENCER.

For eighteen Japanese, Sir JOHN SHELLEY was 1st, and Mrs. HAMMOND-SPENCER 2nd. The last named lady was 1st for six white Japanese, one variety; Sir JOHN SHELLEY 2nd. Rev. E. HEATHCOTE was 1st for six yellow Japanese, and Mr. T. KEKEWICH was 1st with any other colour.

In the classes restricted to amateurs and cottagers, the 1st prize stand for twelve blooms Japanese, was of such excellence, that it was awarded the National Chrysanthemum Society's Certificate, three of the blooms being superior to any in the show. The winner was Mr. W. L. JONES, and the stand consisted of M. Louis Rémy, Nellie Pockett, M. Louis Rémy, Mrs. Barkley, W. R. Church, Madame G. Henry, Madame G. Henry, Le Grand Dragon, and W. R. Church.

GROUPS.

For groups of Chrysanthemums, the 1st prizes were won respectively by Messrs. W. BROCK, M. FARRANT, and C. M. COLLINGWOOD; the National Chrysanthemum Society's Certificate being adjudged to the latter for quality of blooms. In the miscellaneous collection of plants, 1st prize was won with a pretty arrangement by Mr. W. BROCK.

Two classes were devoted to baskets of autumn foliage, and one to baskets of Chrysanthemum flowers, all of which had many entries. There were a large number of fruit classes, and the display was an excellent one. The chief winner was Sir JOHN SHELLEY, who took 1st in the premier class for Apples and Pears, as well as many others in smaller classes.

Messrs. ISAAC HOUSE & SON, Westbury-on-Trym, had Violets, for which he was awarded a Certificate of Merit. Messrs. ROBERT VEITCH & SON, Exeter, had an interesting stand containing new Cactus Dahlias, a plant of Vitis Coignetiæ, Lilies, Nerines, Correas, Ceanothus, Genistas, winter-flowering Begonias, Ericas, Physalis Franchetti, and other plants, as well as a collection of Apples.

WARGRAVE GARDENERS.

NOVEMBER 6.—A lecture on "Plant Food in the Soil," was given by Mr. H. COLEBY, Hon. Sec. Nothing was taken for granted, and step by step it was shown what a plant is, how it feeds, what it feeds upon, and the manner in which the food is taken from the soil. The soluble portions of a small quantity of soil were discovered by experiment, and the different methods of keeping a sufficient quantity of plant food in the soil, were described.

There were fine exhibits of Chrysanthemums.

MANCHESTER AND NORTH OF ENGLAND ORCHID.

NOVEMBER 6.—There was a fine display of plants at the meeting held on the above date, a large number of groups being displayed.

S. GRATRIX, Esq., Whalley Range (gr., Mr. Cypher), staged a remarkable group of Cypripedium insigne; twenty-seven yellow-flowered varieties were particularly noticeable in a group, which contained such fine forms as C. insigne "Harefield Hall var.," and others. Other plants not forming part of the group were Cypripedium × Minos var. Youngi, a very handsome form, which has been previously certificated here; C. insigne var. Bohnhofiana received an Award of Merit, as did also Cypripedium × Corona. A Silver-gilt Medal was awarded for this group.

W. DUCKWORTH, Esq., Flixton (gr., Mr. Tindall), exhibited a tasteful and brilliant group of plants, the background of which consisted of superbly-grown Oncidiums, as O. Marshallianum, O. crispum, O. prætextum, O. Forbesii, and O. × Mantini. In the centre of the group about a dozen different forms of Cattleya aurea were placed, one being rather distinct, and giving promise of being a valuable form. Lælia Perrini var. alba found a prominent place in the group. It is pleasing to see that this, one of the rarest of albinos, is in such good hands that it is not likely to be lost to cultivation. I am not sure whether another plant exists. Another plant of which several good pieces were shown was Odontoglossum cirrhosum. All these plants combined had a very good effect. A Silver-gilt Medal was awarded to the group; Oncidium × Mantini and Cattleya aurea var. Distinction received Awards of Merit.

O. O. WRIGLEY, Esq., Bury (gr., Mr. Rogers), can always be depended upon (weather permitting) to send an interesting and meritorious collection of plants. On this occasion he made no exception to the rule, and some finely-grown Cypripedes were staged. The group contained several nice plants of Cypripedium insigne var. Sanderæ, a good plant of C. i. "Harefield Hall" var., several beautiful plants of a fine variety of Cypripedium × Arthurianum. I have on previous occasions remarked on the successful flowering of plants from this collection in what appears to be exceedingly small pots; three plants of C. × Arthurianum, for example, bore five flowers each in 5-inch pots. C. × nitens var. Wrigleyana received a well-deserved First class Certificate. A Silver Medal was awarded to the group.

W. THOMPSON, Esq., Stone (gr., Mr. Stevens), staged a nice group of plants, among which were three fine plants of Epidendrum vitellinum var. autumnalis with half a dozen fine flower-spikes on each, for which a Cultural Certificate, carrying with it a Bronze Medal, was awarded. Other plants in the group were Cattleya × Mantini, Lælio-Cattleya × Statteriana (Award of Merit), and a very light form of Odontoglossum × crispo-Harryana. Bronze Medal for group.

THOMAS STATTER, Esq., Whitefield (gr., Mr. Johnson), exhibited a plant of Lælio-Cattleya × Ingrami var. superba, the lip of which was large and richly coloured (Award of Merit).

R. TUNSTILL, Esq., Burnley (gr., Mr. Balmforth), exhibited a form of Cattleya labiata called C.-l. var. Reedleyense, a form with white sepals and petals, and pale rose-coloured lip (Award of Merit).

Mr. J. CYPHER, Cheltenham, staged a good group of plants, containing some good varieties of Cattleya labiata, and various forms of Cypripedium insigne

some good cut spikes of Dendrobium Phalænopsis var. Schroderianum brightened the display considerably. A Silver Medal was awarded for this group.

Messrs. HUGH LOW & Co., Enfield, sent a beautiful form of Cattleya labiata var. Amesiana, white sepals and petals, with rose-coloured lip; four flowers were borne on the spike (First-class Certificate).

Mr. W. OWEN, Hartford, Cheshire, staged a group of Cypripedium insigne var. montanum (Vote of Thanks). *P. W.*

POTTERS BAR HORTICULTURAL.

NOVEMBER 6.—The Potters Bar Horticultural Society held their third annual autumn exhibition at the Village Hall on the above date. Some fine non competitive exhibits, together with a slight increase in the floral competitive classes, made the show much better than any of its predecessors. The gardeners of the district are somewhat tardy as regards showing, for there were only two who competed in the group of Chrysanthemum-plants, and a like number in the cut bloom class. In the former class, Mr. Chas. Gardiner, gr. to Mr S. G. SHEPPARD, secured the premier prize for the first time; his old antagonist, Mr. C. Kitney, gr. to Mr. MATHEWS, coming 2nd.

In the twelve cut bloom class, Mr. Joy, gr. to Mrs. DORE, had several fine blooms in his winning stand; Mr. GARDINER being given a 3rd for a smaller lot.

The chief centre of attraction was the non-competitive exhibits. The most important of these were from Messrs. CUTBUSH of Barnet, and Mr. W. Newton, gr. to Mr. M. NATHAN. The latter showed flowering and foliage plants, the most conspicuous being very finely grown plants of Begonia Gloire de Lorraine.

THE CORN EXCHANGE CHRYSANTHEMUM.

NOVEMBER 10.—This is an annual exhibition by members of the Corn Exchange, and others having relations to it, and which a few years ago sprang out of a desire to test the capabilities of each other as cultivators of the Chrysanthemum. A few prizes are provided, and at some time during the day all the subjects exhibited are sold for the benefit of the Corn Exchange Benevolent Society. The show is held in one of the large rooms of the restaurant adjoining the Corn Exchange.

GLOUCESTER FRUIT AND CHRYSANTHEMUM.

NOVEMBER 10.—The thirty-ninth annual exhibition was held at the Shire Hall, Gloucester, on Monday last, and was a conspicuous success.

In the fruit classes, for the best 15 distinct varieties of most profitable sorts of Apples, the 1st prize was awarded to Mr. T. MORRIS, Maisemore; and the 2nd to Mr. D. PHELPS, Tibberton.

Mr. J. H. WOTTON, Byford, Hereford, secured the 1st prize for a collection of Apples and Pears, staged on a space not exceeding 50 square feet; Mr. J. R. BENNETT, Chaxhill, Westbury, being 2nd.

For a collection of dessert Apples, Mr. A. W. G. WRIGHT, Newent, won 1st prize, and also secured the premier award for a collection of culinary Apples (fifteen varieties).

Mr. T. MORRIS, Maisemore, and Mr. DANIEL PHELPS were awarded 1st prizes for a collection of culinary Apples and cider Apples respectively.

Mr. W. GORDON, Canning, carried off the 1st prize for a collection of dessert Pears.

In the Chrysanthemum classes, Mr. W. GAMMIDGE (gr., C. Tidmarsh), Gloucester, was awarded 1st prize for a magnificent group; while the Misses DAVIES, The Lodge, Stonehouse (gr., A. J. Driver), won the 1st prize for twelve incurved cut blooms, and for eighteen Japanese cut blooms.

The Championship prize, offered by Mr. HENRY TERRELL, K.C., for the highest number of points, was won by Mr. DANIEL PHELPS, of Tibberton, with twenty-five points; being closely followed by Mr. J. R. BENNETT, Chaxhill, with twenty-four points. *F. P.*

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

NOVEMBER 10.—At a meeting of the Committee on the above date, nine members were reported to be on the sick fund, and the amount of sick pay for the month £31 7*s*. Seven new members were elected. The Secretary was authorised to obtain 3,000 circulars for distribution.

BRIGHTON AND SUSSEX HORTICULTURAL.

NOVEMBER 11, 12.—The Brighton and Sussex Horticultural and Mutual Improvement Society is a very active body, and does much to create and maintain an enthusiasm for horticulture in a wide district, having the Queen of watering places as a centre.

Periodical meetings are held for the discussion of horticultural subjects, and at each of these there are small prizes offered for the best exhibits of plants fruits, or vegetables in season. In add tion to these, the Society holds three large competitive shows each year, one in April, another in August, and a Chrysanthemum and fruit exhibition in November.

The arrangements for all of these functions must certainly cause a large amount of work for the Committee and Secretary (Mr. J. Thorpe) to discharge, but it is done well, and the show just held is an instance of this. The large building known as the Corn Exchange, and the Dome adjoining, were filled with satisfactory exhibits, and it was necessary to arrange the fruits and vegetables in a gallery. It would be hardly fair to compare the cut blooms of Chrysanthemum with the best of those seen a week earlier at the Aquarium, but we may say that the quality was excellent for the district, and not only were the Brighton folk satisfied with the display of exhibits generally, but they were convinced it was better than any they have had for some time.

There were several little features in the show that are not common at every exhibition, such for instance as the tables of Orchids and of Chrysanthemum blooms, and these gave a little individuality at least to the spectacle, whilst the ornate exhibit of Messrs. W. BALCHIN & SONS was most elaborate. There was rather too much massing in the arrangement of the groups of Chrysanthemum plants, otherwise the quality contained in them was good. Here, as in many other places, there are increased numbers of the cut flowers shown in vases, and it really seems as if the conversion of the old-fashioned exhibitors and judges to the more rational system will be complete. The effect is better however when one variety only is displayed in each vase, and not five, as was the case in the principal class at Brighton.

GROUPS AND SPECIMEN PLANTS.

Three classes called for groups of plants, the first of these being for Chrysanthemums only, the 2nd for Chrysanthemums arranged with any green foliage plants, and the 3rd for Chrysanthemums alone, from gentlemen's gardeners only. The first class of group was arranged on spaces of 14 feet by 8 feet, and of the four exhibits there were made, that which gained 1st prize alone showed any novelty in arrangement. But there was too much "massing" in this, and the effect was imposing rather than pleasing. The 1st prize was awarded to Mr. G. Sims, gr. to E. A. WALLIS, Esq., Sunnyside, Upper Lewes Road, Brighton, for an exhibit containing a number of cone-like smaller groups, each of a distinct colour. 2nd, Mr. GEORGE MILES, Victoria Nursery, Dyke Road, Brighton, who had a group in which was a number of plants of the old incurveds, Mrs. George Rundle and Mrs. George Glenny—an unusual feature. 3rd, Mr. J. Hill, gr. to W. CLARKSON WALLIS, Esq., Springfield, Withdean.

The groups of Chrysanthemum-plants, with foliage plants interspersed, were arranged in corners, and Mr. GEO. MILES took 1st prize.

The best group of Chrysanthemum-plants from a gentleman's garden was shown by Mr. A. J. BLAKE, Bleak House, Brighton.

For four standard trained specimens, Mr. W. E. Anderson, gr. to B. PARISH, Esq., Melodia, Preston Park, obtained 1st prize, who had plants with clear stems of about 2½ feet. The varieties were Eva Knowles, N. C. S. Jubilee, Mme. Carnot, and Baron Hirsch. The specimens were freely bloomed.

The pyramids were more artificial looking than the standards. The 1st prize was won by Mr. GEO. LAMBERT, 17, Bognor Road, Chichester.

Mr. J. HILL, staged excellent specimens in the class for four dwarf plants, each bore a wonderful number of satisfactory blooms. The varieties were Madame Carnot, Col. W. B. Smith, Eva Knowles, and Mrs. White Popham; 2nd Mr. W. ANDERSON; 3rd, Mr. GEO. LAMBERT. The exhibitor last mentioned won 1st prize for four Pompons, his specimens of Black Douglas and La Vogue, being very fine; 2nd, Mr. J. HILL.

The best six fine foliage plants, suitable for table decoration, were from Mr. H. Garnet, gr. to R. G. FLETCHER, Esq., Mount Harry, Preston; and the larger class for twelve specimens by Messrs. W. MILES & Co., 16 & 17, Church Road, Hove.

The best half-dozen Begonias (Gloire de Lorraine) was shown by Mr. J. E. Hickson, gr. to the Rev. F. S. SCLATER, Newick Park, Sussex; the best twelve plants of Primula sinensis, by the Brighton Florist's Stores (Mr. W. BRIGHT, Manager), 176, Western Road; 2nd, Mr. A. Sayers, gr. to S. COPESTAKE, Esq., 1, Adelaide Crescent, Hove.

Messrs. W. MILES & Co., 16 & 17, Church Road, Hove, had 1st prize for twelve Cyclamens, and for twelve berried plants, showing Solanum capsicastrum; the best double Primulas from Messrs. W. MILES & Co, who had a white variety; and Mr. H. HEAD had a red-flowered variety of almost equal merit.

There was a class for Orchids exhibited with Ferns, &c, upon tables 4 feet square, and there were two exhibits, the better one being from Mr. H. Garnett, gr. to R. G. FLETCHER, Esq., Mount Harry, Preston, who had finely flowered Cattleyas, Dendrobium Phalænopsis, and Oncidiums; 2nd, Mr. J. Harper, gr. to E. A. TUCKER, Esq, Vernon Lodge, Preston.

CUT BLOOMS IN VASES.

In a class for twenty-five blooms (distinct varieties), with long stems as cut from the plants, the best exhibit was from Mr. J. E. Hickson, gr. to the Rev F. S. SCLATER, Newick Park, Sussex; 2nd, Mr. G. Hart, gr. to H. HEAD, Esq., Buckingham, Shoreham; and 3rd, the gr. to Executors of the late Mrs. JENKINS, Burgess Hill.

Mr. JOHN MANNINGS, Church Street, Steyning, showed Pompon flowers very well indeed in a class for three vases of them; and Mr. CHAS. KNOWLES was 2nd. The best singles, also displayed in three vases, were shown by Mr. G. HART.

The best exhibit of three vases of five blooms each, one variety only in each vase, was shown by Mr. J. DAVIS; his varieties were Viviand Morel, Mrs. T. Carrington, and Lord Salisbury. 2nd, Mr. G. Duncan, gr. to C. J. LUCAS, Esq., Warnham Court, Horsham.

Mr. M. Tourle, gr. to F. BURCHARD, Esq., showed a very tasteful exhibit of an epergne of Chrysanthemum blooms, and a variety of foliage, suitable for the centre of a dinner-table; all the blooms used were bronze-coloured. 2nd, Miss T. WATERHOUSE, Hassocks.

Class 31 was for collections of cut Chrysanthemums, arranged with Ferns, &c., on tables 4 feet square, to be viewed on all sides: 1st, Mr. GEO. MILES, Victoria Nursery, Dyke Road, Brighton; 2nd, Mr. M. STANDING; and 3rd, Mr. H. HEAD, The Drive Nursery, Hove. The exhibit that gained 2nd prize was more lightly arranged, but there were pretty Codiæums in Mr. Miles' exhibit.

CUT BLOOMS ON BOARDS.

The largest class for cut blooms called for thirty-six specimens in not fewer than twenty-four varieties. There were five collections staged, each of which was of commendable quality. The 1st prize was won by Mr. A. Simmons, gr. to Sir FRANCIS OSBORNE. He had Madame Carnot, and several of its sports in excellent style; also Rev. W. Wilks, Lord Ludlow, Le Grand Dragon, General Hutton, and amongst others, a very pale-coloured bloom of the new continental variety, Paolo Raedelli; 2nd, Mr. J. Harris, gr. to Lt.-Col. C. P. HENTY, Avisford, Arundel.

The best collection of twelve Japanese blooms, amongst five exhibits, was from Mr. R. Draycott, gr. to Lt.-Col. DUDLEY-SAMPSON, Buxhalls, Lindfield. All of his blooms were good in size, and most of them in colour also—W. R. Church and Le Grand Dragon particularly. 2nd, Mr. ROBT. VINALL, The Stout House, Horsham.

The 1st prize for twelve incurved blooms was won by Mr. J. E. Daniels, gr. to F. S. PHILLIPS, Esq., Sunnyside, Holmwood; and Mr. M. Tourle, gr. to F. BARCHARD Esq, Horsted Place, Uckfield, was 2nd. Mr. DANIELS had also the best collection of six blooms, distinct; and the best six blooms of one variety, showing C. H Curtis.

The best hirsute variety was Hairy Wonder, being shown in each of the three exhibits in a class for six blooms.

The Brighton Amateur Challenge Trophy, offered for eighteen Japanese Chrysanthemum-blooms shown by an amateur, was won by Mr. E. FARRELL, 62, Whipping ham Road, Brighton.

FRUITS AND VEGETABLES.

The best black Grapes were Gros Colmar, cultivated in London, and exhibited by Mr. Wm. Taylor, gr. to C. BAYER, Esq., Tewkesbury Lodge, Forest Hill, S.E.; Mr. W. MANTON was 2nd. The best white Grapes were Muscat of Alexandria, shown by Mr. J. Muddell, gr. to Mrs. HENDERSON, Sedgwick Park, Horsham; Mr. M. TAYLOR'S London produce being given 2nd place in this instance.

Mr. J. HARRIS had the best dish of Tomatos in ten exhibits. Mr. G. Stovell, gr. to H. YOUNG, Esq., Withdean Grange, Brighton, had 1st prize for two dishes of Apples and an equal number of Pears.

The best four dishes of Pears were shown by Mr F. W. THOMAS, Wannock Gardens, near Polegate. He had excellent fruits of the following varieties:—Le Lectier, Pitmaston Duchess, Marie Louise d'Uccle, and Doyenné du Comice. 2nd, Mr. John Webb, gr. to H. HADWICK, Esq., Manor House, Horsham.

Among a very large number of exhibits of four dishes of Apples, the best was from Mr. F. W. THOMAS, who had high-coloured, clean specimens of Ribston Pippin, King of Pippins, Adams' Pearmain, and Cox's Orange Pippin. 2nd, Mr. W. MANTON.

Mr. F. W. THOMAS had the best cooking Apples in Bismarck, Mère de Ménage, Emperor Alexander, and Newton Wonder.

The best single dish of Pears was one of Pitmaston Duchess, from Mr. C. MURRELL, Franklands Gardens, Burgess Hill.

Ribston Pippin was well shown by Mr. TOURLE, who had 1st prize for one dish of dessert Apples.

The best collection of six kinds of vegetables was shown by Mr. F. Rapley, gr. to Miss VISICK, St. John's Withdean; and the best collection of eight kinds by Mr. W. MANTON.

Mr. W. Manton, gr. to the Rev. R. MASBITER, The Grange, Hurstpierpoint, won 1st prise in a class for vegetables, in which prizes were offered by Messrs. J. Cheal & Sons.

NON-COMPETITIVE EXHIBITS.

The most important of these was one by Messrs. W. BALCHIN & SONS, Hassocks Nurseries, Sussex, who had a most ornate exhibit of well coloured Codiæums and other fine foliage plants, Begonia Gloire de Lorraine, &c., the centre of the exhibit representing a lake, and the margins naturally made with Lycopodiums, trailing Asparagus, and Zebrina pendula. Upon this mirror were placed excellent wreaths, bouquets, and arches of flowers. This firm had also a collection of highly coloured hardy fruits.

Messrs. J. CHEAL & SONS, Lowfield Nurseries, Crawley, showed Apples and Pears, relieved with sprays of coloured foliage and a few Chrysanthemum blooms; Mr. G. W. PIPER, Uckfield, blooms of Tea Rose Sunrise; Messrs. I. HOUSE & SON, Westbury on-Trym, Violets; Messrs. TILLEY, BROS., London Road, Brighton, seeds and bulbs; Messrs. W. WELLS & Co., Redhill, Chrysanthemum blooms.

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period Nov. 2 to Nov. 8, 1902. Height above sea-level 24 feet.

1902. November 2 to November 8.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 2	N.E.	46·7	44·8	53·9	43·3	0·02	49·0	51·0	52·5	35·0
MON. 3	E.S.E.	47·2	46·2	51·3	41·3	...	48·5	50·8	52·3	32·2
TUES. 4	E.S.E.	46·2	45·2	51·6	38·0	0·01	47·9	50·5	52·2	30·2
WED. 5	E.S.E.	47·7	46·5	55·8	44·3	0·11	47·5	50·2	52·2	35·0
THU. 6	E.S.E.	53·2	51·8	58·2	47·2	0·17	48·9	50·2	52·1	35·7
FRI. 7	W.S.W.	52·2	48·2	57·3	51·5	0·08	50·6	50·5	52·0	46·3
SAT. 8	S.S.W.	52·7	50·0	54·4	44·8	0·15	49·4	51·0	52·0	36·8
						Tot				
MEANS	...	49·4	47·5	54·6	44·3	0·54	48·8	50·6	52·2	35·9

Remarks.—A dull week, with rain nearly every day, and a dense fog on the night of the 3rd inst.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending Nov. 8, is furnished from the Meteorological Office:—

"The *weather* during this period was again of an unsettled character generally. Rain fell daily in many western and northern localities, and by the middle of the week, this condition had extended to the southern and eastern districts also, where the weather had been mainly fair and dry, although with occasional fog and mist inland.

"The *temperature* continued above the mean, the excess ranging from 3° in most parts of the kingdom, to 4° in England, S.W. and Scotland, N. and E., to as much as 5° in England, S. The highest of the maxima occurred at most stations on the 6th, but earlier in the week in most parts of Ireland. In the Channel Islands, the thermometer recorded 63°, in England, E., 62°, Scotland, E., 61°, and 60° or 59° in nearly all other districts. The lowest of the minima, which were chiefly registered on Sunday, varied from 26° in England, N.W., and 30° in many other districts, to 35° in England, S., and Ireland, N., and to 46° in the Channel Islands. During the latter part of the period the nights were very mild for the time of year.

"The *rainfall* exceeded the mean over the kingdom as a whole, but only just equalled it in England, S., and was deficient in the extreme north of Scotland, and the north and east of England. In Ireland, the excess was large, and was mainly due to a heavy fall which was experienced on Thursday, when between an inch and an inch and a-half was collected in the gauge.

"The *bright sunshine* was again less than the mean generally, but slightly in excess in the Midland Counties and England, S.W. The percentage of the possible duration ranged from 30° in the Channel Islands, 28° in England, S.W., and 27° in England, S., to 14° in Scotland, N., 12° in Ireland, S., and 11° in Scotland, W."

THE WEATHER IN WEST HERTS.

THE spell of warm weather referred to in my last two reports as "St. Luke's little summer," has now lasted over three weeks. During the past week the highest temperature registered in the thermometer-screen was 60°, and on no night did the exposed thermometer show more than 3° of frost. The ground is still rather warm, the temperature at 1 foot deep being about 1° warmer, and at 2 feet deep about 2° warmer, than is seasonable. Rain has fallen on five of the last six days, but the total measurement only amounted to about three-quarters of an inch. That quantity has however proved sufficient at this season to start the percolation gauge on which short grass is growing. This is the first time that any rain-water at all has come through the 2½ feet of soil in that gauge since June 23, or for nearly five months. The sun shone on an average for one and threequarter hours a day, or for a seasonable period. The winds have been rather light during the week, except on the morning of the 8th, when a strong wind was blowing from the south and south-west. The amount of moisture in the air has been about average.

E. M., Berkhamsted, November 11, 1902.

MARKETS.

COVENT GARDEN, Nov. 13.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. ED.]

CUT FLOWERS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Arums, per dozen	3 0	4 0
Asparagus Fern, per bunch ...	0 6	2 0
Bouvardias, per dozen bunches.	6 0	8 0
Carnations, per bunch	1 0	2 0
Chrysanthemum, various, per doz. bunches ...	3 0	24 0
Eucharis, p. doz.	3 0	4 0
French Fern, per doz. bunches ...	0 4	0 6
Gardenias, per box	1 6	2 0
Gladiolus Brenchleyensis, per bunch... ...	2 0	3 0
Lilium album, doz. blooms	1 6	2 6
— Harrisii, per bunch ...	4 0	5 0
Lobelia, Red, per dozen bunches	4 0	6 0
Lily of the Valley, per dozen bunches... ...	6 0	18 0
Maidenhair Fern, doz. bunches ...	4 0	6 0
Marguerites, Yellow, per dozen bunches ...	1 6	2 0
Mignonette, per doz. bunches ...	1 6	2 6
Mimosa, p. bunch	0 9	1 6
Narcissus, dozen bunches... ...	2 6	3 0
Orchids (Cattleya) dozen blooms...	6 0	8 0
Pelargoniums, Scarlet, dozen bunches... ...	2 0	4 0
Roman Hyacinths, dozen bunches	10 0	12 0
Roses, Mermet, p. bunch... ...	1 6	2 6
— red, p. dozen bunches ...	3 0	8 0
— various, doz. bunches ...	3 0	18 0
Smilax, per doz. trails	1 6	2 6
Stephanotis, per dozen	2 0	3 0
Tuberoses, per doz. blooms ...	0 3	0 4
Violets, per dozen bunches ...	1 3	2 0
— Parma, per bunch... ...	1 6	2 6
White Lilac (French) ...	4 6	5 0
Winter Cherries, per dz. bunches	4 0	6 0

PLANTS IN POTS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Adiantums, per dozen	4 0	8 0
Aralias, per doz.	4 0	8 0
Arbor Vitæ, per dozen	9 0	18 0
Aspidistras, per dozen	18 0	36 0
Aucubas, per doz.	4 0	8 0
Chrysanthemum, various	3 0	18 0
Crotons, per doz.	12 0	24 0
Cyclamen, per dozen	12 0	18 0
Dracænas, var., per dozen ...	12 0	30 0
Evergreen, per dozen	3 0	18 0
Ericas, per dozen	9 0	12 0
Euonymus, vars., per dozen ...	4 0	6 0
Ferns in variety, per dozen ...	4 0	30 0
Ficus elastica, per dozen	9 0	24 0
Genistas	8 0	—
Marguerites, per dozen	5 0	8 0
Palms, various, each	3 0	20 0
Primulas, p. doz.	4 0	6 0
Pteris tremula, per dozen	4 0	8 0
— Wimsetti, per dozen	4 0	8 0
— major, per dz.	4 0	8 0
Solanums, p. doz.	6 0	12 0

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, English, per sieve ...	2 0	3 6
— Blenheims, per bushel ...	5 0	7 0
— Cox's Orange Pippin, sieve.	3 0	6 0
— King's, p. bus	5 0	7 0
— Harveys and various cookers, per bush.	3 6	6 0
— American, bls.	12 0	30 0
Bananas, bunch	4 0	10 0
— loose, dozen	1 0	1 6
Blackberries, per peck	2 0	2 6
Chestnuts, French, per bag ...	8 0	15 0
— Italian, p. bag	20	—
Cobnuts, per lb. .	0	4 —
Cranberries, American, qt.	0	6 —
— case	11	0 —
Figs, foreign, box or basket ...	0 10	2 0
Grapes, new Hamburgh, per lb.	0	6 1 0
— Belgians, p. lb.	0	4 0 8
— Alicante, lb. .	0	8 1 0
— Colman, A ,lb.	1	3 1 6
— — B., per lb..	0	6 0 9
— Muscats, A., per lb. ...	3	0 4 0
— — B., per lb.	0	10 1 6
Lemons, per case	12	0 22 6
Lychees, packet .	0	11 —
Melons, English, each	1	0 2 0
Oranges, case.....	5	0 13 6
Pears, per sieve...	2	0 4 0
— stewing, per basket ...	3	0 4 0
Pines, each ...	3	0 5 0
Walnuts, bags ...	5	6 6 0
— foreign, bags.	11	0 12 6

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen ...	2 6	3 0
— Jerusalem, per sieve ...	1 6	—
Asparagus, sprue	1 0	—
— bundle ...	5 0	—
Beans, dwarf, lb.	0 6	—
— Madeira, bkt.	1 6	—
Beetroots, bushel	1 3	1 6
Brussels Sprouts, per sieve ...	1 3	1 9
Cabbage, p. tally	1 6	2 0
Carrots, doz. bun.	1 6	2 0
— bag (washed).	2 6	—
Cauliflowers, per dozen	0 6	1 6
Celeriac, per doz.	2 0	—
Celery, per dozen bundles... ...	8 0	10 0
Chicory, per lb.	0 3	0 4
Cress, per dozen punnets ...	1 3	—
Cucumbers, doz.	3 0	4 6
Endive, per doz.	1 0	—
Garlic, per lb. ...	0 3	—
Horseradish, foreign, p. bunch	1 3	1 6
Leeks, 12 bunches	1 0	1 6
Lettuces, Cos, per dozen	0 9	1 0
— Cabbage, p. dz.	0 9	1 0
Mint, dozen bun.	1 0	—
Mushrooms, house, per lb.	1 0	—
Onions, doz. bun.	1 6	2 0
— bag	2 6	3 6
— foreign, case	4 0	5 6
— picklers, per sieve	2 0	3 0
Parsley, doz. bun.	1 0	1 6
— sieve	0 6	0 9
Parsnips, per bag	2 0	2 6
Potatos, per ton	60 0	100 0
Radishes, p. doz. bunches ...	0 9	1 0
Salad, small, punnets, per doz....	1 3	—
Savoys, tally ...	3 0	4 0
Seakale, doz pnts.	18 0	21 0
Shallots, per doz.	0 1½	—
Spinach, English, bushel	0 9	1 6
Tomatos, English, per doz. lb.	4 0	5 0
— Canary, deeps	3 6	4 6
— Channel Ilds. per lb. ...	0 3	0 4
Turnips, per dozen	1 6	—
— bags	1 6	2 6
Watercress, per doz. bunches...	0 3	0 6

REMARKS.—Persimmons fetch from 6*d.* to 2*s.* per box; Chow Chows, 4*s.* per box; and Sweet Potatos, 16*s.* to 18*s.* per cwt. Plums are quite over, and Blackberries nearly so. Oranges consist of Jaffa, Valencia, Jamaica, and Teneriffe fruits. Some Onions, fine and large, in bags of 50 kilog., fetch 2*s.* 6*d.* to 2*s.* 9*d.* per bag; Stachys (Crosnes), 4*d.* to 5*d.* per lb. Italian Chestnuts are by far the best in the market.

POTATOS.

Various samples, 60*s.* to 90*s.* per ton; Dunbars, red soil, 100*s.* *John Bath, 32 & 34, Wellington Street, Covent Garden.*

FRUITS AND VEGETABLES.

GLASGOW, *November* 12.—The following are the averages of the prices during the past week:—Apples, American, Baldwin, 16*s.* to 20*s.* per barrel; do., Canadian, 12*s.* to 16*s.* do.; do., Kings, 16*s.* to 22*s.* do.; do., Greenings, clear fruit, 14*s.* to 17*s.* do.; do., slightly spotted, 8*s.* to 11*s.* do.; do., various high-class red, 14*s.* to 18*s.* do.; do., green, 12*s.* to 16*s.* do; Pears, Californian, Duchess and Clairgeau, 6*s.* to 7*s.* per case; Lemons, Malagas, 16*s.* to 18*s.* per half chest; Grapes, English, 1*s.* 2*d.* per lb.; do., Scotch, 9*d.* to 2*s.* do.; do., Almeria, 10*s.* to 18*s.* per barrel; Mushrooms, 2*s.* per lb.; Tomatos (Scotch), 6*d.* to 8*d.* per lb.; do., English, 3*d* to 6*d.* do; do., Guernsey, 5*d.* to 6*d.* do.; Onions, Valencia, 5*s.* 6*d.* to 7*s.* per cwt.

LIVERPOOL, *November* 12.—*Wholesale Vegetable Market.*—Potatos, per cwt.: Main Crop, 3*s.* to 3*s.* 9*d.*; Up-to-Date, 2*s.* 3*d.* to 2*s.* 9*d.*; Bruce, 2*s.* 6*d.* to 3*s.*; Turnips, 6*d.* to 8*d.* per dozen bunches; Swedes, 1*s.* 3*d.* to 1*s.* 6*d.* per cwt.; Carrots, 6*d.* to 8*d.* per dozen bunches, and 2*s* 6*d.* to 3*s.* per cwt.; Onions, English, 4*s.* 6*d.* to 6*s.* do; do., foreign, 2*s.* 9*d.* to 3*s.* 3*d.* per bag; Parsley, 4*d.* per dozen bunches; Cucumbers, 1*s.* 6*d.* to 2*s.* per dozen; Cauliflowers, 10*d.* to 2*s.* do.; Cabbages, 6*d.* to 1*s.* 0*d.* do.; Celery, 9*d.* to 1*s.* 6*d.* do. *St. Johns:* Potatos, 1*s.* per peck; Grapes, English, 1*s.* 3*d.* to 2*s.* 6*d.* per lb.; do., foreign, 4*d.* to 6*d.* do.; Pines, English, 6*s.* each; Apples, 1*d.* to 4*d.* per lb.; Pears, 2*d.* to 3*d.* do.; Tomatos, 4*d.* to 8*d.* do.; Cucumbers, 4*d.* each; Mushrooms, 1*s.* 3*d.* per lb.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending Nov. 8, 1902, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1901.		1902.		Difference.	
	s.	d.	s.	d.	s.	d.
Wheat	26	6	25	1	— 1	5
Barley	27	0	26	3	— 0	9
Oats	17	8	17	2	— 0	6

SEEDS.

LONDON, *Nov.* 12.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that to-day's seed market was only moderately attended. As regards Cloverseeds generally, whilst there is less excitement observable, a very strong tone prevails, and higher quotations particularly for red samples come to hand from all quarters. Choice White Cloverseed now realises 110*s.* per cwt., whilst full rates are demanded for Alsyke and Trefoil seeds. Meantime, Sainfoin, Timothy, Cocksfoot and Lucerne, remain fully as dear. There is no alteration this week in either Mustard or Rapeseed. For both Tares and

Rye the sale is meagre. Canaryseed is attracting considerable speculative attention, and in view of the short crops everywhere, and the vanishing stocks at all points, a further advance of several shillings per quarter has to be noted. Hemp and Linseed continue to be dull. Blue Peas also move off slowly at last week's figures, but Haricot Beans being scarce and much wanted, show another advance. The Board of Trade Returns give the imports of Clover and Grass seeds into the United Kingdom for the ten months ending October 31, 1902, as 212,826 cwts., value £467,131, as against 211 084 cwts., value £463,192 for the corresponding period of 1901.

ANSWERS TO CORRESPONDENTS.

*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

ALMOST STONELESS GRAPES, &c.: *J. Cobbold.* The cause is imperfect fertilisation of the blooms. The shanking complained of may be due to a bad state of the border and roots, to overcropping this year and previously, and excessive reduction of young growths at one and the same time, instead of gradually at intervals of ten to fourteen days.

AMERICAN AGRICULTURAL BULLETINS: *V. M.* These are published by the various experimental stations, and may be obtained through Putnam's Sons, American publishers, London.

AMERICAN'S VISIT TO KEW: *C. E.* We are unable to devote the time necessary to discover the note in which this circumstance is alluded to. You must indicate the year when it appeared more closely.

A PROVISIONAL PROTECTION FOR A LINE OF CRATÆGUS PYRACANTHA VAR. LELANDI: *Daleman.* We can suggest nothing better than close sheep-hurdles, for these being pervious to the air, the winds do not rebound and injure vegetation, yet they form good plant shelter, and are not particularly unsightly; moreover, they are soon removed when no longer required.

AMERICAN ALOE (AGAVE): *X. Y. Z.* If the Myrtle and Clianthus live out-of-doors without protection in the winter, the Agave may safely be trusted out-of-doors if protected. The chief danger to guard against being moisture at the roots, and a pent house of some sort would obviate all danger from wet.

BADLY-COLOURED GROS COLMAN: *C. H.*, and *Anxious to Know.* Due to a very wet, over-rich soil, and the lack of sunshine. Do not, another year, crop the Vines so heavily, or thin the bunches so severely; employ no mulch on the border, but keep the surface stirred with the hoe, and start the Vines at the end of March, and use no manure.

BEGONIA GLOIRE DE LORRAINE BEARING SEED-VESSELS: *T. E.* An extremely rare occurrence.

BOILERS: *Liverpool.* We have no practical knowledge of the boiler named, and we would advise you to make inquiries of the maker. Tubes which act as heat conduits, if small, are apt to distil tar from fuel giving off much smoke, which would slack, and stand in need of frequent cleaning with steel-wire brushes. We know that tubular boilers, with wood as the fuel used, do so badly.

BOOKS: *A. P. Blake. The Horticultural Directory and Year-Book*, price 1s., office of *Journal of Horticulture*, 12, Mitre Court Chambers, Fleet Street, E.C.

[illegible] OF THE GARDENERS' CHRONICLE OF 1880: [illegible] The publisher informs us that he has no issues of earlier date than 1888.

CUCUMBER LEAVES: *T. A.* They have the appearance of having been scalded; there is no trace of fungus on the leaves. We cannot name the varieties of Abutilon.

ELECTRO CULTURE: *V. M.* We are not contemplating the publication of any further articles on this subject, the matter being at present in abeyance in this country.

GARDENERS' ROYAL BENEVOLENT INSTITUTION: *J. Penwell.* The sum in postage stamps, 1s. 6d., has been sent to the Secretary.

LILIUM LANCIFOLIUM: *T. Fowler.* Gradually dry off the bulbs, and keep them still in the pots in a cold greenhouse or pit, or failing such structures, sink the pots in a thick bed of leaves, covering the pots with slates, so as to keep out mice and rats. Potting should be carried out at the new year, putting the bulbs about halfway down in the pots, with 2 inches of soil over them, the pot being filled up when the stems have grown 2 feet. Use as a compost, rough peat and loam, and stable-manure in a rotten state, and some sand. Pot firmly.

MR. A. FINDLAY, POTATO-RAISER: *X. Y. Z.* His address is Markinch, Fifeshire, Scotland.

NAMES OF FRUITS, ETC.: *We are desirous to oblige our correspondents as far as we can, but the task is becoming too great, too costly, and too time-consuming for us to continue it without restrictions. Correspondents should observe the rule that* **not more than six varieties** *be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. The fruits should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.*—*Bojohn*, 1, Beurré d'Aremberg; 2, Durondeau; 3, Fondante de Charneu; 4, rotten; 5, Glou Morçeau; 6, Dr. Andry.—*F. C. V.* 1, Reinette du Canada; 2, Reinette Grise.—*A. W.* Beurré Hardy.—*O. W.* Conseiller d'Hollande. It is a characteristic of this variety to rot at the core.—*H. P. L.* 1, Brown Beurré; 2, Beurré du Cercle; 3, Cox's Pomona.—*C. H.* 1, Sops-in-wine; 2, Sack or Spice Apple; 3, Shepherd's Fame.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*E. C.* 1, Cypripedium × Harrisianum; 2, Oncidium incurvum.—*V. J.* Sophronitis grandiflora, of the section often called coccinea.—*H. M.* Thunbergia laurifolia.—*Perplexed.* 1, Retinospora pisifera; 2, Thuya gigantea, the Lobbii of gardens; 3, Abies Nordmanniana; 4, a Juniper, we are not sure which one; 5, Abies Pinsapo; 6, Pinus excelsa.—*A. B., Carrigoran.* Cratægus coccinea.—*F. J. D.* Salvia Bethelli.—*Ignoramus.* 1, Pseudotsuga Douglasii; 2, Retinospora obtusa; 3, Pinus, perhaps monticola, we cannot tell without the cones; 4, Pinus excelsa; 5, Picea sitchensis; 6, Pseudotsuga Douglasii, all good specimens, but nevertheless it is difficult to be sure of the names without the cones.—*J. K.* 1, Olearia Haastii; 2, Andromeda calyculata; 3, Thuya gigantea, the T. Lobbi of gardens.—*G. H.* We cannot name the Chrysanthemum; the two fruits are those of Arbutus Unedo, the Strawberry-tree.—*Matt.* 1 and 5, Euphorbia Lathyris, the Caper Spurge; 2, Stachys lanata; 3, Malva rotundifolia; 4, Alnus glutinosa.—*L.* Oncidium varicosum.—*M. O. B.* 1, Tsuga canadensis; 2, Eugenia (?); 3, Phyllirea meolia.

PERFUMES OF LAVENDER AND VIOLETS: *V. M.* We would advise you to obtain the *Art of Perfumery*, by G. W. T. Piesse, published by Longmans.

ROSES AND MANURE: *Helen M. E.* We have never, in our long experience, found the least trace of the odour of any sort of manure in the blossoms, not even when the piggery and the dove-cote have contributed a large proportion of the manure employed in the Rose beds. Your friend must have imagined she scented Clay's Fertiliser.

THE PURPLE BEECH: *Sandringham.* The history of this tree is summarised in Sargent's *Silva*, vol. ix. (1896), p. 24 adnot. The earliest mention is that by Wagner in the *Historia Naturalis Helvetiæ Curiosa*, published in 1680, wherein three trees are mentioned as growing in a wood in Zurichgau. Scheuzer, *Beschreibung der Natur Geschichten der Schweizerlandes*, parts 1, 2, gives an account of the tree, and repeats the legend that the red-leaved Beech-trees sprang up in a forest where five brothers were murdered. A purple-leaved Beech was cultivated in a garden in Canton Zurich, before 1763 (see Ott's *Dendrologie*, p. 245). The first authentic botanical record we can lay our hands on is in Aiton's *Hortus Kewensis*, vol. v., 297 = "Fagus vulgaris foliis atro-rubentibus." It is there stated to be a native of Germany. Koch, *Dendrologie*, ii., part 2 (1873), p. 18, says it was first noticed in a forest in Thuringia. In Wilkomm's *Forstliche Flora*, ed. 2 (1887), p. 440, adnot Bechstein is mentioned as having found, in 1877, in a wood at Oberspier, near Sondershausen, a tree twenty-seven mètres high, estimated at 200 years of age, and considered to be the parent of all the Blutbuchen (Purple Beeches) at present cultivated. It is not mentioned in Miller's *Gard. Dict.*, ed. 8, nor in Evelyn's *Silva*. Reichenbach, exsicc. 2327, found the variety sanguinea in Southern Tyrol.

TOMATOS FOR MARKET: *Northern Scot.* Lister's Prolific, Chemin Rouge, Young's Eclipse, Frogmore Selected, Sutton's Abundance.

TOMATO BROOKE'S FREEDOM: *Northern Scot.*—We have no knowledge of the variety. Perhaps some of our readers who may be acquainted with it, can inform our correspondent where seed may be obtained.

VIOLETS: *J. H.* The spots are caused by Puccinia Violæ. Cut off and burn all affected leaves, then apply the Bordeaux Mixture, or sulphide of potassium (liver of sulphur), ½ oz. dissolved in 1 gallon of water. The insects had escaped.

V. M. H.: *Apprentice Gardener.* These letters stand for "Victoria Medal of Honour," and are assumed by distinguished horticulturists, botanists, and others, who have received this Medal from the Council of the Royal Horticultural Society, with the consent of her late Majesty Queen Victoria.

COMMUNICATIONS RECEIVED.—A. D.—G. S.—Prof. Comes Portici.—S W. F.—B. L. Robinson, Harvard.—A. Worsley.—Dr. Dammer.—D. R. W.—J. A. W.—W. G.—E. J. Clay.—C. J. W.—J. O.—Anxious to know.—G. J. I.—C. S.—C H. P.—J. H. B—W. P. L.—Hoe Benham.—A. H.—W B.—E. J.—F. P.—H. S.—H.M. B.—S. C.—W. C. L.—E. D. T.—L. F., Angers.—H. H. R—J. Denny.—D R. W—W. P. B—W. H. Y.—E. Bonavia.—A. H—P. T. M.—J.—A. W.—S. A.—R. P.—J. J. W.—W. H.—P. Barr—A. C. F.—S. P.—H. B.—C. B.—H. G.—H. C P.—C. J. A.—C. A. R.—W. B. J.—W. C.—A. B.—Sanders—Ed. R.

GARDENING APPOINTMENTS.

MR. T. B. WILSON, for the past sixteen months Foreman in the gardens, Maiden Bradley, Bath, succeeds Mr. W. F. JELLY as Head Gardener to Her Grace the Duchess of SOMERSET, at the same place.

Mr. H. J. TUPPEN, previously Head Gardener to Mrs. HAMILTON FOX, Chislehurst, as Head Gardener to Mrs. SPINDLER, Old Park, Ventnor, I.W.

Mr. T. H. BOLTON, late Gardener at Walhampton Park, Hants, as Gardener to Sir RICHARD BULKELEY, of Baron Hill, Anglesey, North Wales.

Mr. WATKIN JONES, for the past eight years Gardener to W. L. CHEW, Esq., Pell Wall, Market Drayton, and Hankelow Court, Nantwich, Cheshire, as Gardener to Sir GEORGE CHETWODE, Bart., Oakley Park, Market Drayton, Salop

Mr. THOMAS H. WINSKILL, for three and a half years head Gardener at Staunton Park, Herefordshire, and for the last year Nursery and Landscape Foreman to Messrs. C. KIMBERLEY & SON as Head Gardener to W. A. GAUNTLETT, Esq., The Crewe Gardens, Kenilworth.

Mr. GEO. BARKER, Head Gardener for five years at Stansted House, Stansted, as Head Gardener to Miss GIBSON, Hill House, Saffron Walden, Essex.

CATALOGUES RECEIVED.

THOS. KENNEDY & CO., High Street, Dumfries—Forest, Ornamental, and Fruit Trees.

LITTLE & BALLANTYNE Carlisle—Forest, Ornamental, and Fruit Trees; Roses, Perennial Herbaceous, and Stove and Greenhouse Plants.

HERD BROS., Penrith—Forest, Ornamental, and Fruit Trees, &c.

FISHER, SON, & SIBRAY, Royal Nurseries, Handsworth, near Sheffield—General Nursery Stock, Stove and Greenhouse Plants, &c.

AMOS PERRY, Hardy Plant Farm, Winchmore Hill, London, N.—Hardy Border and Rock Plants.

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VISIT TO JERSEY.

(*Continued from p.* 278.)

IN connection with the Growers' Association of Jersey, an "ideal day" was spent in visiting the horticultural establishments in the eastern parishes of the island. About thirty members and friends joined the party. The first place of call was Messrs. Bashford's, at Bagot, where we received a most cordial welcome by the owners, and were shown over the highly interesting grounds by the manager, Mr. Viel. As fruit-growers, the Messrs. Bashford are known in every part of the United Kingdom. There are two estates, covering an area of 37 acres—10 or 12 acres are under glass. There are about two miles of wall space covered with Doyenné du Comice and Belle de Jersey (Uvedale's St. Germain) Pears; of the latter, there were some magnificent fruits seen. Last year some fruits of this variety were gathered weighing between 3 and 3½ lb. each. Plantations of the finer kinds, such as Williams' Bon Chrétien, Louise Bonne, and Pitmaston Duchess, were showing fairly well about 11,000 trees were under culture, which ast year yielded 65 tons of Williams' Bon Chr tien, and 12 tons of Doyenné du Comice. Most of the trees in the plantation are grown on the bush system, which enables the sun and air to get right through them. It was not expected this season that more than one-half a crop would be realised, although one of the party, who is regarded as capable of growing good fruit, remarked that he would be satisfied with as much fruit on his trees as he had seen windfalls on the ground at Messrs. Bashford's. The Pitmaston Duchess was said to prefer a somewhat cooler climate than that of Jersey.

Several houses were inspected, chiefly devoted to Tomato culture, about 70 tons annually being raised. One house was 770 ft. long, and another 440 ft. in length. Farmyard manure is extensively employed, both for indoor and outdoor culture, and quicklime (slaked) is used in combination with the dung. It is the usual practice to apply small dressings of the lime at frequent intervals. The firm have power for supplying themselves with electric light, and among other experiments they have tried using this for the forcing of plant-growth, but with only partial success.

The next visit was to the farm of Mr. A. G. Marett, of Maison de Haut, St. Saviours, where some fine specimens of young Jersey cattle were exhibited. A plantation of outdoor Tomatos was inspected, which had been ravaged by disease, and what promised to be a good crop was utterly blasted; in three or four days the whole had been destroyed. The owner remarked that he had sprayed once or twice too seldom. It was also generally agreed that not a moment should be lost before taking preventive measures when the presence of the disease was even suspected. Some fine Fig and Apple trees in full bearing were seen here.

Proceeding to the Cæsarean Nurseries, Five Oaks, the establishment of Mr. H. Becker, President of the Association, the party found the grounds in excellent order, and well worthy of a visit. A plot of outdoor Tomatos of the "Excel All" variety were shown in full and heavy bearing. This is considered one of the best Tomatos for outdoor culture, its robust habit and quick growth tends to check disease. Proper attention had, however, been given to spraying the crop. The leading Grape under cultivation was Appley Towers, a black variety of the Alicante type, but evidently of a finer colour, more oval in shape, and of a brighter blue tint. It is said to colour easily and earlier than Black Hamburgh, grown in the same house. Appley Towers was originally sent out by Messrs. Cutbush of Barnet.

Pot Figs were doing well, the second crop was ripening, and a third crop showing. The most popular fruit is "White Marseilles," which is a free cropper and of delicious flavour. Early Prolific, sometimes called, but wrongly, Brown Turkey, is another favourite; fruits of ½-lb. each are frequently produced. The popular outdoor Fig of Jersey is Black Nigger [?], trees covering 60 feet square were seen.

Apples were doing well for the season, both standards and cordons. Peasgood's Nonsuch, of four years old, were pointed out as masterpieces for fruit, of excellent size and colour. Golden Noble and Prince Albert also crop heavily. The latter possesses the advantage of yielding freely on very small trees in their second year. Blenheim Orange Pippin and Devonshire Quarrenden were also well spoken of. The four leading varieties of Pears under culture were the Chaumontel, Doyenné du Comice, Clapp's Favourite, and Williams' Bon Chrétien.

Strawberry-culture was a special feature. Plants of Royal Sovereign were in splendid condition; but Monarch was said to be by far the best sort; plants of this variety showed vigorous growth, with exceedingly strong foliage. A novel plan was adopted of growing three plants in a triangle, set 6 ins. apart, and 2 ft. 6 ins. from centre to centre. By this method a greater number of plants could be grown per acre, it facilitated cleaning of the ground, and the accumulated foliage was said to be a protection of the fruit from birds.

A special system of glazing glasshouses was inspected and explained. It consisted in dispensing with the use of putty. The use of paint on the outside of the glazing-bars is also avoided or minimised, by modifying the construction and arrangement of the bars or supports for the glass. The supporting bars are of the ordinary shape, but without the usual rabbeting, the bars being grooved along the centre, so as to carry off any water. No bedding material is needed for the glass, which overlaps in the ordinary manner, and is finally held in position by means of thin galvanised iron caps, of the shape of an inverted trough, having a level flange on each side.

The flanges are striped with a coat of thick oil paint before being applied to the edges of the panes of glass, thereby creating a perfectly true and water-tight joint. The metal caps, of the same length as the individual panes of glass, overlap similarly to the glass itself, and they are fixed by means of galvanised screws to the wooden bar below, the glass being thereby securely held between the wood and caps. Each pane of glass is prevented from slipping by the cap, which fixes the pane of glass below it. The invention most certainly combines economy with simplicity. No skilled labour is required for the glazing, and it is contended that these moveable roofs afford easy means of glazing and unglazing for the purpose of removing and manuring Tomato and Vine-borders, for cleaning down houses infested by insect pests, and washing the glass; and for ripening the wood of Roses, Vines, and Peaches planted under glass, by unglazing the house during the ripening period.

Tomato and Cucumber growers should find it most advantageous, because it affords a means of exposing without great expense a "Tomato or Cucumber sick" border to the influence of the open air, thereby restoring the soil in one season to its original sweetness.

Mr. Becker also exhibited a very fine collection of Orchids, Cypripedium insigne maintaining its place, notwithstanding the numerous species and hybrids introduced during the past few years. Among Palms was a magnificent specimen of what is erroneously called the Sago Palm, Cycas circinalis, possessing an enormous head of beautiful leaves. *J. J. Willis, Harpenden.*

ORCHID NOTES AND GLEANINGS.

WEST POINT, WHALLEY RANGE.

THE residence of Samuel Gratrix, Esq., surrounded by seventeen acres, the greater part of which is laid out as garden and pleasure ground, is an attractive one for an active business man. Within a short drive of the busy part of Manchester, it yet has all the advantages of a country residence, and with the rare attraction of being arranged in old-time fashion. The lawn surrounding the house has here and there beds of Rhododendrons and Roses, the edgings of some of which had in their season coloured Primroses in bloom and is bounded by a bank of Hollies, separating it from the garden beyond, in which fruit trees are planted among herbaceous plants and flo rists flowers, which add an attraction to the floral display in the spring and early summer months. This season there has been an unusually fine show of flowers for so late a date of Roses, Pentstemons,

Carnations, Violets, and other plants. Beyond the garden are situated the kennels, for both Mrs. and Mr. Gratrix are great dog fanciers, and win numerous prizes with their famous breeds of dogs. The estate is well enclosed by a narrow belt of trees.

THE ORCHIDS.

It is some seven years ago that Mr. Gratrix became a convert to Orchid culture, and the collecting of a choice selection has since been steadily pursued by him; and more especially during the last two years, owing to the capital results that have been obtained by his present gardener, Mr. George Cypher.

Cypripediums are among the favourites, and the houses in which they are grown are now a fine sight, with numerous showy flowers. In one of the houses there is a beautiful and extensive collection of varieties of C. insigne in bloom, without a single ordinary form being found among them. The most prominent of the yellow-coloured forms were C. i. Sanderæ, C. i. Luciani, C. i. Chantini-Lindeni, C. i. Ethel, C. i. Dorothy, C. i. Johnsoni, C. i. Laura Kimball, and two or three other varieties that are unnamed. The gigantic Harefield Hall variety had as rivals the large and beautifully marked C. i. Gratrixiæ, the fine C. i. Baron Schroder, C. i. West Point variety with a very large proportion of white in its dorsal sepal; and C. i. "George Cypher," the last-named a perfect florists' flower, large and finely coloured, possessing very broad petals, a feature in which many otherwise fine varieties are deficient. Other remarkable varieties of C. insigne noted were C. i. Bohnhoffianum, and an allied variety, in both of which the dorsal sepal had the lower part uniformly coloured purplish-brown, and unspotted; C. i. montanum aureum, C. i. Gratrixianum, the dark coloured C. i. Breesleyanum, and a number of very fine things of the C. i. punctatum violaceum and nitens class.

The adjoining house has a fine show of hybrids, and rare varieties of species. We remarked quite a large stock of C. Lawrenceanum Hyeanum and C. callosum Sanderæ; equally beautiful and still more rare are C. callosum Gratrixiæ, with white petals and sepals, having emerald-green lines and pink tips, and a lip of a deep crimson-ruby tint; and C. callosum aureum, a flower that is almost an albino, with a pale yellow pouch. In the same house there were in flower fine varieties of C. × Leeanum, two of the best being Albertianum and Ball's variety; C. × triumphans, C. × Minos Young's variety, C. × Maudiæ, two fine forms of C. × Eismannianum, and other rare hybrids.

In the third division we noted in flower the yellow variety of C. × Chas. Canham, C. × aureum Hyeanum, the very handsome C. × James H. Veitch, varieties of C. × Chapmani, C. × Wm. Lloyd, and other C. bellatulum crosses; C. × Tityus, C. × Ajax, C. × Memoria Moensii, C. Lowegrenianum, C. × Fairy Queen, C. × Leonidas, and others. The plants are in robust health, and success is attained attending the work of raising new hybrids.

THE CATTLEYA AND LÆLIA HOUSE

has an equally fine selection, in which imported plants are represented only by albinos or fine forms. Of the white forms of the Cattleya labiata section, a fine specimen of the albino of the autumn-flowering form was showing two fine spikes of bloom; and C. Mossiæ Wageneri, C. Mendeli alba, C. Gaskelliana alba, C. Trianæi alba, and other whites were observed; C. labiata Gilmouriæ is the finest of the several white-varieties having purple lips; and C. Mossiæ Mrs. Gratrix is a pleasing white form. The hybrids form the bulk of the collection, and are in fine condition. Of those specially noted, we may name Lælio-Cattleya × Ingrami, L.-C. × Highburyensis, L.-C. × Martineti superba, L.-C × luminosa, L.-C. × Queen Empress, L.-C. × Hon Mrs. Astor, L.-C. × Digbyano-Mendeli, Lælia × Mrs. Gratrix, Cattleya × Germania, and C. × Goossensiana. A good selection of Sophronitis crosses was noted, some of which are in flower.

Odontoglossums, chiefly O. crispum and some hybrids, fill another house, and some very good ones are in bloom, notably a distinct form of O. × Loochristyense, with whitish ground colour finely marked with red-brown; and some good O. × Adrianæ, the most remarkable of which is O. × A. Wellsianum.

Paintings are made of all the leading varieties, and these are always interesting for purposes of comparison. Among the favourites at West Point are O. crispum Sibyl, a pretty spotted form; O. c. Jeanette, a very attractive flower; O. Pescatorei alba, and some others with distinct features. There are also some good O. × Rolfeæ and O. × crispo-Harryanum, and all are in excellent condition.

Oak-leaves are employed in moderate quantity in the potting mixtures, and some are mixed with materials employed for the fine lot of Lycastes which fill a small, rather cool house. These plants show remarkable vigour, and two of the most cherished are the richly coloured hybrids, Lycaste × Mary Gratrix, and L. ×

FIG. 124.—FRONT OF THE PROPOSED NEW HORTICULTURAL HALL BUILDINGS, FACING TOWARDS VINCENT SQUARE. (SEE P. 378.)

Samuel Gratrix. L. Skinneri alba is represented by fine specimens; also the apricot-lipped L. S. armeniaca, L. S. Charlesworthi, L. lasioglossa, and most of the other good kinds. A proportion of turfy loam is added to the compost in which the Lycastes are potted, which is found to favour strong growth and abundant flowering.

In a warm house were observed on the one side a very fine collection of varieties of Lælia purpurata, Cattleya × Hardyana, C. Dowiana, C. D. aurea, and others; and on the other, some species of Cypripedium. In another house, a fine collection of Dendrobiums finds place, as also in other plant houses where suitable positions can be found for suspending them. Mrs. Gratrix takes as much interest in garden matters as her husband, and in Orchids the lady has a small selection of her own special favourites.

The Plant Houses.

One range is of great interest, as it was once in the famous gardens of the late Sam Mendel. The houses are probably more than forty years old, and though they have occupied their present site about twenty-five years, are still in sound condition. The range of three divisions contains Ferns and foliage plants; a good lot of the pretty Begonia Gloire de Lorraine, Primula sinensis, &c. The stove contains a fine set of Anthuriums, Eucharis, and other flowering and foliage plants; Chrysanthemums fill another house, and the conservatory is filled with flowering plants.

In every part of the garden there is abundant evidence of the perfect accord existing between employer and gardener.

THE FERTILISATION OF SWEET PEAS.

Many people take it for granted that in Sweet Peas cross-fertilisation takes place through the agency of bees or other insects. Yet I believe it is a fact that almost all the beautiful varieties we now have are the results of careful cross-fertilisation by man's agency; but since so many varieties have been obtained, some natural variations will occur when fertilised by their own pollen. With regard to the possibility of insects being instrumental in the crossing of varieties, it would seem a most difficult matter, for, on examining flowers, it will be found that the pollen falls while the two lower petals or "keel" are quite closed over the stigma and anthers; and in crossing by artificial agency, it is difficult to open the keel and remove the anthers before the pollen is ripe. In Mr. W. T. Hutchins' notes in the *Florists' Exchange*, he says:—"I am quite positive that the cross-fertilisation of the Sweet Pea by any species of insect whatever is a thing unknown and practically impossible." And I think anyone who has given the matter careful attention will agree with him. In support of this, I may refer to the time when we had only the Painted Lady, Purple King, and the Scarlet grown in close proximity, each sort came quite true from seed year after year. It was when the Scarlet Invincible came out that I first paid attention to Sweet Peas. At the suggestion of my then employer, I watched for anything that might appear in the way of an improvement, but it soon became evident that variations were very rare in the ordinary way. Of course, there is always the possibility of natural variations occurring, even without the aid of insects; but in Sweet Peas, I repeat that most of our best varieties have originated from cross-fertilisation by human agency. And there is yet plenty of scope for further improvement, for many of the finest-formed flowers are not the brightest in colour, and by carefully applying the pollen of the colours desired on the best-formed flowers of the nearest shade, good results may be obtained. Indiscriminate crossing of different colours should be avoided, for though some distinct varieties may result, they are not so likely to prove constant as those from more careful selection of parentage. *A. Hemsley.* [Will some grower kindly state what percentage of Sweet Peas come true from seed? If the flowers are self-fertilised, the seedlings should all come true. Ed.]

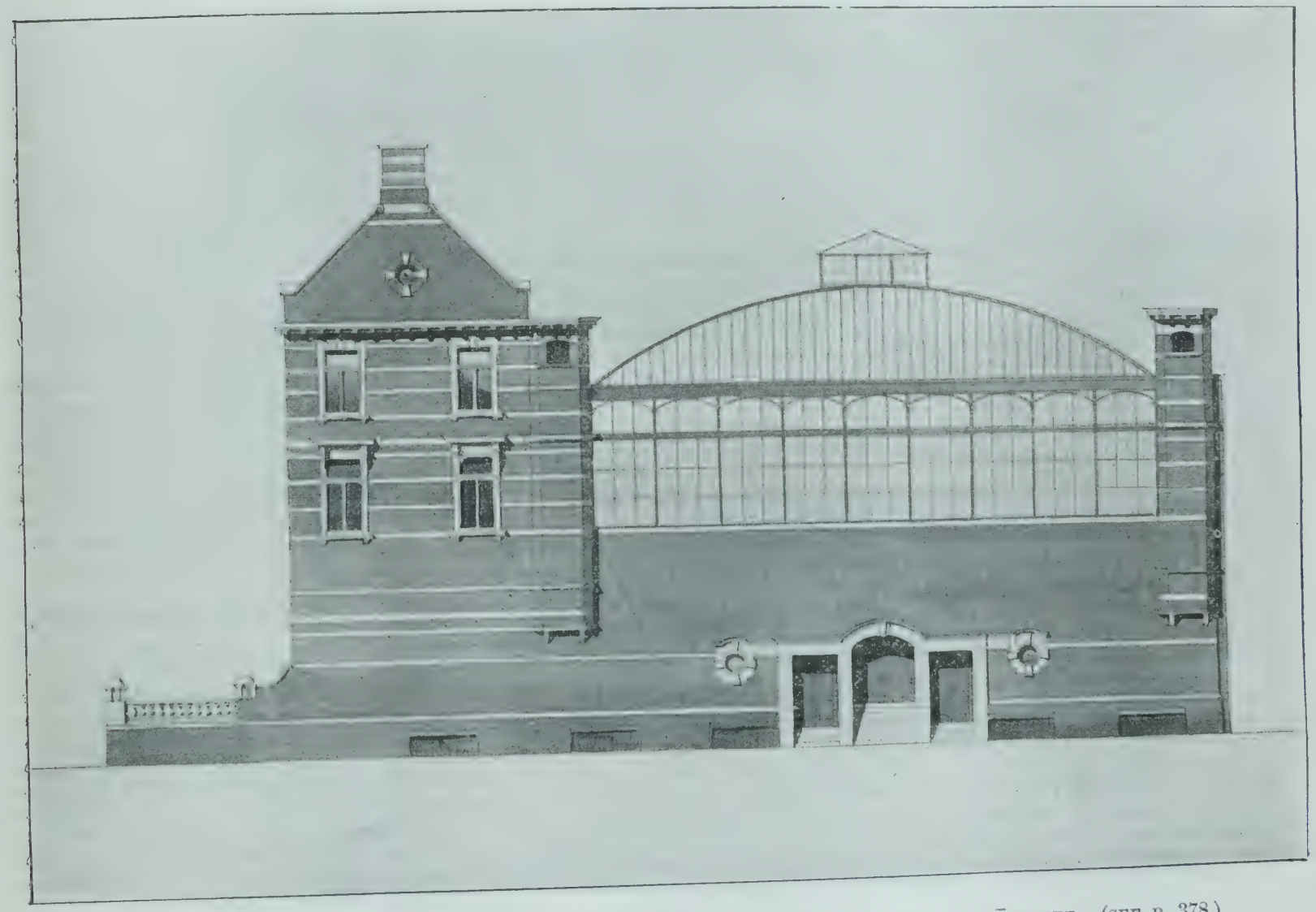

Fig. 125.—Side view of the proposed Horticultural Hall buildings, facing Bell Street. (see p. 378.)

PLANT PORTRAITS.

Apple Emperor Alexander.—*Bulletin d'Arboriculture, &c.*, October. Introduced to England from Russia by Lee of Hammersmith.

Begonia (hybrida) marmorata.—A double-flowered tuberous Begonia, with white flowers, densely mottled and edged with red. *Revue de l'Horticulture Belge*, November.

Clerodendron Balfouri and C. splendens.—*Revue Horticole*, November 1.

Hybrid Roses.—1, Rosa blanda × indica = R. Aschersoniana ×; 2, R. californica × nitida = R. Scharkeana ×; 3, R. carolina × humilis = R. Graebneriæ ×; and 4, R. rugosa × carolina = R. Späthiana ×. *Garten Flora*, November.

WORMS OF THE GARDEN AND LAWN.

(*Continued from p. 331.*)

THE RED-WORM (*Lumbricus rubellus*).

I HAVE found it everywhere in England whenever I have sought for it. It has been sent to me from Kent, Devonshire, and Gloucester, and it abounds in Yorkshire, Lancashire, Cumberland, and elsewhere. Among the foreign countries which own it, are Germany, Belgium, France, Hungary, Russia, Sweden, and Newfoundland. It is fond of good diet, and will not usually be found where good food is wanting. This is a significant fact. The red-worm is one of the gentry of wormland, and likes a well spread table. It leaves some of the humbler denizens of the country to handle the bones and digest the tougher morsels, and haunts only those spots where the food is plentiful and easily obtained.

Hence, it is specially abundant in gardens which are kept well manured. It breeds freely in decaying compost, stable manure, leaf-mould, and in the rich ooze on the margins of streams and lakes. It is not usually addicted to the vice of injuring growing plants, although it is not above dragging the flaccid leaves of recently transplanted Cabbage and similar plants into its burrow. Like the true earthworm, it can flatten its tail so as to grip the soil more firmly, and so resist the attemps of birds and others to drag it from its hole.

In the lawn it is undoubtedly of real service to the gardener, as it helps to keep the ground porous, and produce a fine soft mould from its casts, which is specially adapted to act as a stimulant to the more tender forms of grass. It should not be destroyed, as it seldom gets out of bounds or becomes injurious to plants.

Owing to the length of the present article, it has been thought best to reserve the two remaining species for treatment in a separate paper. *Hilderic Friend, High Wycombe.*

(*To be continued.*)

CHRYSANTHEMUM NOTES.

AT MR. NORMAN DAVIS'.

No other man has done so much to popularise in England, M. Calvat's seedling variety Madame Carnot, and its two sports, Mrs. W. Mease (pale lemon colour), and G. J. Warren (yellow), as Mr. Norman Davis, of the Chrysanthemum Nursery, Framfield, near Uckfield. The magnificent blooms he has shown for several years past at the November and December exhibitions, have not only called forth general admiration, but surprise also; for it is true enough that this "family," as Chrysanthemists always call the group, is by no means easily cultivated, and there are many collections in which success is not attained in anything like the measure it might be. It is not probable that Madame Carnot will ever be generally grown with the same ease, and constant success, as is the case at Framfield; but it may help cultivators to obtain some improvement, at least, if we reproduce a few hints that were given us when visiting the collection on November 10. In the first place, it should be remembered that Framfield is considered to have a very dry atmosphere, and this has some bearing in connection with the cultivation of one of the grossest growing of Chrysanthemums, and one that in most cases fails to ripen its growth perfectly. But in addition to this, Mr. Davis, who has no wish to make his cultivation a secret, informed us that he "takes" the natural second crown buds as early in August as possible, and the plants are then removed into spacious houses 200 feet long, and varying from 12 to 25 feet wide. The pots are plunged three parts of their depth in the good loam of the house, and the roots coming freely through the base feed on this.

PERFECT RIPENING ESSENTIAL.

There is a valuable hint to cultivators in the fact that, in such a warm, sunny district, as Framfield, Mr. Davis houses these varieties in August. Success in the case of Madame Carnot and its sports depends upon the perfect ripening of the plants, and to obtain this, greater facilities are required than for almost all other varieties.

We were greatly impressed by the long rows of plants in Mr. Davis' houses. They were about 6½ to 7 feet high, each of them bearing three fine specimen blooms, some of which measured 10 inches across whilst upon the plant, and the florets drooping around, not spread out as upon the exhibition board. The flowers, with exceedingly rare exceptions, were developing as kindly as a Viviand Morel could do, and they largely bore out Mr. Davis' opinion that Madame Carnot is one of the most refined Chrysanthemums as well as one of the largest. Madame Carnot is Mr. Davis' favourite exhibition Chrysanthemum, and he treats it as such.

MADAME CARNOT FOR MARKET.

He grows it for exhibition, and he cultivates it for market; but the many hundreds of blooms that are sent to market would raise the standard of many an exhibition. They are never sold at a lower wholesale price than £5 per 100, and there is a quick sale for them.

We wish Chrysanthemum-growers would visit Framfield in numbers, and take the hint they would get upon seeing that Mr. Davis treats his Chrysanthemums as living plants, requiring light and air, and sufficient space around them for their leaves to perform their important functions properly; it would be a corrective to the "huddling" system that is common.

One word more about Madame Carnot. It is a curious physiological fact that the date upon which a plant shows its flower-bud determines the width the florets will assume when they expand, three months later. They are all natural second-crown buds, but if the plant arrives at such a stage very early, the florets will be narrow, and if late, they will be wide. If it is desired to keep a developed bloom fresh upon the plant for a considerable time, Mr. Davis has found it useful to remove half of the leaves, and there are very few varieties that possess the qualities of "lasting" in the same degree.

Our visit was made too late to see many of the new seedling varieties at Framfield, but the novelties of last season and of other cultivators, were there in numbers, which, having remarked upon at other establishments we shall omit mention here with two exceptions. The first is Calvat's Sun, which is likely to become the best yellow exhibition Chrysanthemum yet raised; and Violet Lady Beaumont, an excellent crimson Japanese, distributed last season, and raised by Mr. N. Molyneux. There were scores of dwarf plants of this, and hundreds of large blooms. It seems to be of the most satisfactory habit, and Mr. Davis is convinced that it will be an uncommonly good market variety.

OTHER GOOD MARKET SORTS.

Mr. Davis being a cultivator of blooms for supplying market, is naturally quick to detect market qualities in new varieties; indeed, he is a remarkably good judge of all types, being an absolute enthusiast. Among the purely market sorts at Framfield, the American incurved Japanese Western King is prime favourite, and it is worthy of being so, for the white blooms are exceedingly pretty. A good yellow one is Mabel Morgan, and H. T. Burrows (Weeks) will make a good red variety..

Every section of Chrysanthemum is cultivated at Framfield, and there were in flower select varieties of Pompons, Anemone-flowered, reflexed, and single varieties. Amongst the single flowers, much store is set on the varieties Victoria, primrose coloured; Star of Honour, white; Edith Pagram, pink; and Pure Gold.

That Mr. Davis can effectively arrange as well as cultivate Chrysanthemum blooms, has been shown by his competitive exhibits around the fountain at the Aquarium, when he has generally won the Gold Medal; and in addition to the numerous medals of the National Chrysanthemum Society, he has been awarded a Gold Medal by the Royal Horticultural Society for a display of cut blooms in the Drill Hall. It is not surprising that he prizes this one above all others, for it is rarely awarded for cut flowers of any description.

STROKES OF FORTUNE.

In reply to a question, Mr. Davis said that the best seedling variety he ever raised was that of Florence Davis about fifteen years ago, which is still cultivated, and the best sport he has had was that of Chas. Davis, from Viviand Morel, about ten years ago. He felt sure that Viviand Morel would sport, and he therefore cultivated 500 plants of it in his old nurseries at Lilford Road, Camberwell, to try and secure it. He was fortunate, for the variety did sport, and the commercial advantage of this in the first twelve months was equal to £300.

We had intended to say something of Mr. Davis' practice of forcing vegetables, but must defer this until the "show" season has passed.

A SPORT FROM LILY MOUNTFORD.

Mr. M. Gleeson, gardener at Warren House, Stanmore, informs us that he has a very pretty sport from the variety Lily Mountford.

THE ROSARY.

LATE BLOOMING ROSES.

THOSE Roses are undoubtedly of the greatest value to the cultivator which possess what is called the "perpetual" habit in the greatest degree; they adorn our gardens when others, perhaps not of less beauty, have entirely disappeared. The Austrian, Persian, and Penzance Briars, are exquisitely beautiful, and their delicate fragrance abides in our natures long after they are gone; but they are, in the language of the American singer, "too bright to last." Roses of this type are only retained in our modern gardens by reason of their perfect loveliness; the pictures they create are sufficiently evanescent, but they remain things of beauty and joys for ever in the remembrance. No Rose is more transitory, and very few so full of grace and sweetness, as that semi-double Austrian Briar, Rosa Harrisoni. But I have at the present date (November 6), a Rose in my garden of at least equal fascination, and considerably deeper colour, flowering most conspicuously upon a sheltered south wall; I mean Madame Pierre Cochet, a climbing Noisette, raised by M. Cochet in 1891, which many rosarians regard as a great advance on William Allen Richardson. It is extremely floriferous; its shoots are highly artistic, and its colour is superb. It is indeed quite invaluable as a late autumnal Rose. Another Noisette that flowers in gloomy November, is the somewhat venerable variety Aimée Vibert, whose white clusters are very effective. Bouquet d'Or, which is also comparatively speaking a late bloomer, produces at this season an occasional flower.

Among Hybrid Perpetuals, one of the most precious, alike in colour, productiveness and

marvellous perpetuality, is Captain Hayward, a variety that should be much oftener found in Scottish gardens than it is. More familiar to amateurs is Margaret Dickson, which flowers profusely on the confines of winter. It is certainly one of the very finest Roses raised at Newtownards, much superior in my estimation to those later introductions, Lady Clanmorris and Bessie Brown, which, though of charming colour, do not open with equal facility. During the last fortnight, Charles Lefebvre, A. K. Williams, and Horace Vernet, three of our finest crimson Hybrid Perpetuals, have unfolded an occasional flower, but as late autumnal bloomers they are not very satisfactory.

The most perpetual flowering of all Roses are the Teas and Hybrid Teas. Of these the most reliable for late autumnal bloom are Caroline Testout and Margaret Dickson, which in my own garden are flowering still; Clara Watson, a beautiful and free-flowering, half-climbing Hybrid Tea, which produces its fine flowers on a west wall; Devoniensis, a beautiful variety, with delicate grace; Madame Pernet Ducher and Papa Gontier, of equal artistic value; Madame Abel Chatenay, whose colour is rose, shaded with salmon, one of the finest French Roses; Viscountess Folkestone, which requires no eulogium; and that richly coloured, dark crimson, semi-double hybrid, Marquise de Salisbury. Such pure Teas as Anna Olivier, Marie Van Houtte, Enchantress, which has the floriferousness of the China Roses; Medea, Madame Hoste, and Madame Lambard, are also invaluable for garden cultivation, not less for their beauty, than by virtue of their wonderful continuity of blooming. *David R. Williamson.*

NOTES FROM BUXTED PARK.

PLANTING PEACH-HOUSES.—It is so usual to see Peach-houses planted with a single row of trees along the front, which are trained to a trellis, and another row of trees at the back, which are trained on the wall, that it would appear as if no other method was possible. Mr. H. C. Prinsep, gr. to Viscount Portman at Buxted Park, Sussex, not only thinks it possible, but twenty years ago he adopted in the treatment of one house, a method by which he will maintain it is possible to obtain a greater number of fruits. The house in question is 32 feet long and 18 feet wide, and the roof is of that type generally known as a "Hip" or three-quarter span. The aspect is nearly due south. There are three trees against the back wall, and in place of the row of trees that would be cultivated at the front of the house, there are seven shorter rows proceeding across the house from the path near to the wall to the front. The trees are trained to upright trellises, and four feet spaces are allowed between each row of trees. Under certain conditions, as Mr. Prinsep told us recently, the yield is greater because the tree space is increased, and by this method a greater number of varieties may be grown in an equal area, Mr. Prinsep's ten trees represent as many varieties, and he has gathered 120 dozen fruits in a season.

It appears to us a system that might be adopted with advantage in gardens of moderate size and conveniences, providing the locality is a sunny one, where the outdoor crops usually ripen early. In colder or more northern districts, and in extra wide houses, it might happen that parts of the trees would not perfectly ripen the wood.

WINTER FLOWERS IN GREENHOUSE.

In some gardens in late autumn and early winter, how few flowering plants there are in the greenhouse! Chrysanthemums appear to crowd out all others. Zonal Pelargoniums, though among the brightest of greenhouse flowers in winter, will not succeed in all localities, and are not appreciated by some people. In place of them might be recommended the Ivy-leaved section of Pelargoniums. These have been so developed in recent years, that some of the varieties have exceedingly bright-coloured flowers. On November 10 we saw in the greenhouse at Buxted Park Gardens a considerable quantity of these, associated with almost an equal number of Heliotropes and Lilies of the Valley. The Pelargoniums were young plants in 6-inch pots, and had apparently been stopped to prevent a trailing habit. They were blooming freely, and the effect was as pretty as it is uncommon.

PLANTING BULBS IN GRASS, &c.

It is interesting to note that in some gardens bulbs are being planted in very considerable quantities. Mr. H. C. Prinsep informed us recently, that he has planted during the present autumn about 250,000 Narcissus, including a large number of the best varieties. In beds and other suitable places, 100,000 Tulips have been planted, and the collection of flowering shrubs has been improved by the addition of 1,000 plants of named varieties of Rhododendron. The Narcissus have been planted under turf over some 6 acres of pleasure ground, and the varieties grouped separately this method being most approved by the Countess Portarlington.

FIG. 126.—INTERIOR VIEW OF THE PROPOSED HORTICULTURAL HALL, 142 FEET LONG, AND 75 FEET BROAD. (SEE P. 378.)

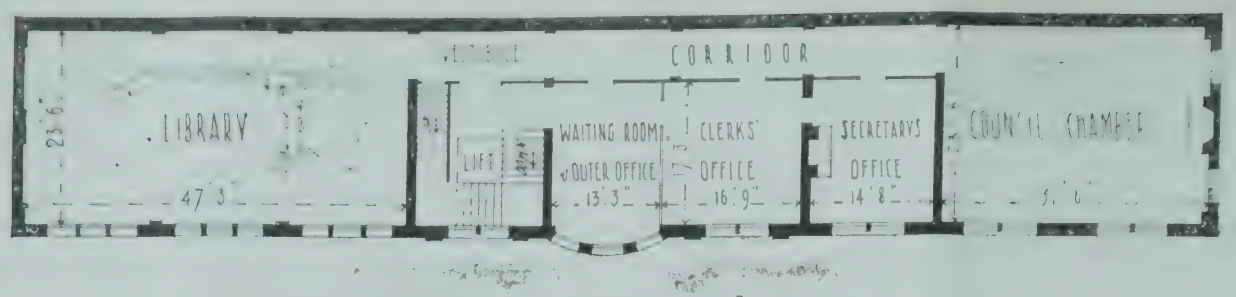

FIG. 127.—THE PROPOSED NEW HORTICULTURAL HALL. (SEE P. 378.)

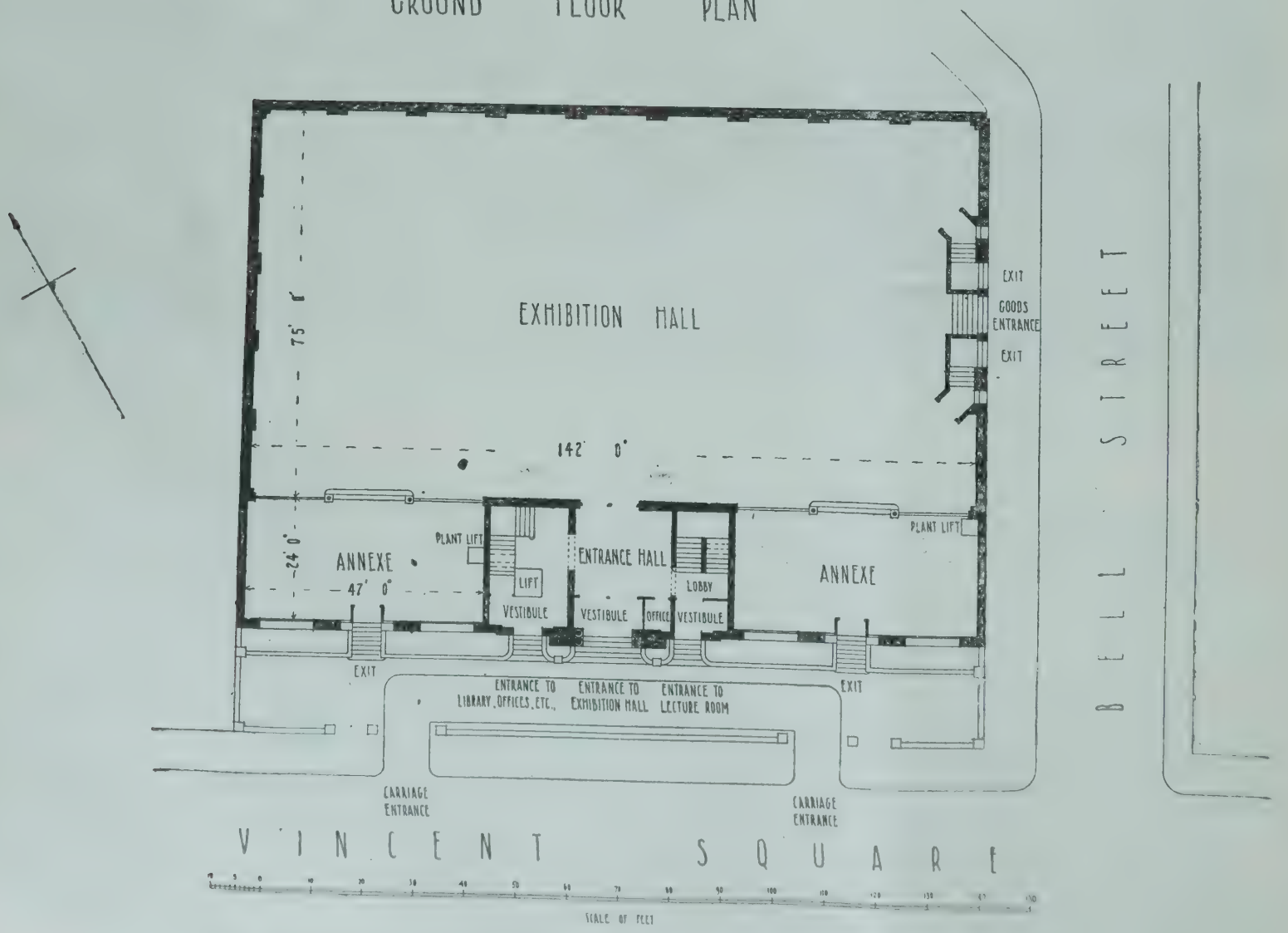

FIG. 128.—GROUND FLOOR PLAN OF NEW HORTICULTURAL HALL. (SEE P. 378.)

FLORISTS' FLOWERS.

SOME POPULAR WHITE CHRYSANTHEMUMS.

I THINK of all the monsters wherever seen, Florence Molyneux will average the deepest; it is an immense bloom, and the swoop of its long florets in a kind of half-circle seems to make it even larger. Madame Carnot, Mrs. J. Lewis, Miss Alice Byron, Mrs. H. Weeks, Lady Byron, Madame Gustave Henry, Madame Herrewege, Mutual Friend, Mermaid, are all so well known, and have been so much shown, and in such excellent condition, that it would seem there is really very little room for anything new in this colour. Looking over my notes for the past season, I find one or two others that were met with, perhaps in fewer numbers, but which are none the less noteworthy. Miss Elsie Fulton has been seen in grand form, Mrs. N. Molyneux another; Jane Molyneux is also an immense variety, well worthy of being included in the list. *C. H. P.*

NURSERY NOTES.

CARNATIONS AT WILLIAM CUTBUSH & SONS', FINCHLEY NURSERIES.

THE thousands of these flowers that are now on view, several lengthy houses being entirely devoted to them, to say nothing of the vast quantity of younger stuff being made in the smaller structures, set one thinking as to the output of such quantities. Up to the date of my call no fire had been used, so much for the mildness of the season, as also telling with what success and perfection these can be grown under such circumstances. I note below the varieties that took my attention, not only for their individual blooms, but also for the utility of the plant itself. The day is gone by for varieties that are wanting in sound constitution, free growth, and which have also short, weak flower-stems.

Not only for the market, but also for general purposes, a most essential feature in Carnation-growing is a stout, long stem, with freedom from calyx-bursting.

If Mr. Brooks, the manager, never does more in raising new varieties, it will be years before the merits of the grand new pure white Tree or winter-flowering Mrs. S. J. Brooks are forgotten. Whites there are, and good also, but from all standpoints the variety in question stands alone.

MALMAISON VARIETIES.

I will now proceed to name the best of the Malmaisons. They do not equal the Trees for free flowering, but surpass them in their larger blooms and unique perfume :—

Jane Seymour, a very distinct bright salmon-pink, will always be known by the peculiarities of the petals being gathered into hard green balls before expanding.

Mrs. Martin R. Smith, tall in growth, but strong; *Gemma, Calypso, Lady Grimston,* now coming scarlet; *Margot, Sault, Sylvius,* very beautiful, blush white. *Maggie Hodgson,* the darkest of all the Malmaisons, also strongly scented; and *Lady Middleton,* a striped variety, with large blooms. It is with no disparagement to others that were being grown and in flower that I do not name them, but rather the want of space.

TREE-CARNATIONS.

The first that took my attention was the large supply of *Mrs. S. J. Brooks,* Award of Merit, Royal Horticultural Society, 1901; most useful for either decorative or cut purposes.

Mrs. Thomas W. Lawson was also in fine form. This variety is indeed hard to beat. It is also most popular on the market, G. Beckwith & Son making this their leading variety.

Sir Hector Macdonald, as popular as it is pretty.

Duchess of Devonshire, a useful pink, with lighter edge.

Countess of Warwick, a fine rich crimson.

FIG. 129.—MESSRS. JAS. VEITCH AND SONS' NEW RASPBERRY "NOVEMBER ABUNDANCE."

(Described in our issue for November 8, 1902, p. 344; see also p. 384.)

G. H. Crane, a very notable variety for winter work, a brilliant scarlet.

The following are all of special merit :—*Governor Bliss,* scarlet; *General Roosevelt,* dark; *D. Whitney, Golden Beauty, Viscount Kitchener, Novelty, Harry Fenn, Duchess of Portland, M. Glory, Lorna,* tall, white; and *Violania.*

America, a dwarf border-like plant, for habit, is worth special notice. *S. C.*

MANURE EXPERIMENTS.

WHAT Mr. T. H. Slade says on p. 341 of your issue of the 8th inst. on the subject of Mr. Shrivell's experiments cannot possibly appeal to independent judgment, so that Mr. A. Dean's earlier suggestion as to the desirability of the Royal Horticultural Society undertaking similar experiments is not only very much to the point, but very much needed. Of course, there are difficulties in the way, and it requires immense study to build up an intelligent course of experiments; as a large portion of those so assiduously made and lengthily reported are futile, because not well conceived, so that they miscarry

For similar experiments, land freshly reclaimed should generally be taken for such purposes, and the soil analysed, and that is most probably impossible in "exhausted" Chiswick, and is rarely done on purpose elsewhere, so that the earlier trials would be under the influence of manurings of previous years, and detract from the value of results, except after three or four years or longer. In some cases, doubtless, approximate effects would be attainable. The fact, however, of absolute impartiality being secured at Chiswick must be worth much to all unbiassed producers.

A decided necessity would exist of means to apply adequate applications of water, if not irrigation, in dry seasons, as without it results from artificials would be greatly misleading. Of course, the measure of the applications would have to be collated, and published with general results.

Among all the manifold experiments made annually in relation to agriculture and horticulture in this country and abroad, I have never seen any reference made on results being presented from dung, compared with those from artificials, as to which property of the dung has chiefly come into play in that connection. Is it the elements of fertility primarily which acted, or the mechanical, including retention of moisture, the latter being important in droughty seasons? Until details of results from experiments include these features as a matter of course, and therefore become more highly complicated in reporting upon them, the whole of the world's experiments suffer in applicability elsewhere.

The quality and condition of the soil, trend of slope, level elevation over sea-level, are other important factors, but hardly ever mentioned any more than the need for and process of liming, the effect of which determines in turn the results from dung. Capillarity is from the absence of such details, therefore, out of reach of calculation, and yet its action not only causes moisture to rise and reach the roots of cultivated plants, but carries upwards elements of fertility from the subsoil. When all these contingencies, to which other dark horses might be added, are borne in mind, it strikes me the punctilio in decimals of results is rather an amusing item of experimental orthodoxy, as on the least reflection they might be safely omitted if less than 0·50, or 1·0 added if over 0·50.

On experiments being continued systematically over many years, doubtless some factors of uncertainty are eliminated, but human life is somewhat short for such methods. It would be well if an up-to-date experimentist were to combine a well thought-out *modus vivendi* in these precarious conditions, and to insist on trial plots being much enlarged, if purposes are to be of practical use.
H. H. Raschen, Sidcup, Kent.

FRUIT DRYING.

At the conference held at Worcester recently, in connection with the Horticultural and Agricultural Exhibition, Mr. James Udale introduced the subject of "Fruit and Vegetable drying." There could be no doubt, he said, that it was desirable that the drying of fruits should receive more attention in this country. He set himself to decide whether it was practicable to dry home-grown fruits, and dry them so that they would be presentable to the public, and he had come to the conclusion that it was. The drying by evaporation must be conducted with discretion. The smaller fruit dried quickly, but it was of inferior commercial value. The fruit that was firm and fleshy, came out best. If fruits were of the same size, it would tend to economical working. It was agreed that English dried fruits were superior to those imported, and if the drying was carried out on a large basis, under a co-operative system, he thought it would be a commercial success.

Miss Edith Bradley, Warden of the Lady Warwick Hostel, Reading, said that she thought the evaporated fruit was superior to bottled fruit for portability, but the latter looked much better. She doubted whether they had found the right machine to carry out the work profitably. It seemed as if the success of fruit bottling turned upon the temperature at which the germs in fruit and vegetables could be destroyed. Why should not the Board of Agriculture give grants for experiments conducted with a view to developing the industry? It should not be left merely to private individuals to investigate.

Mr. Leacock said that the Agricultural Committee had been considering which was the best method of fruit and vegetable drying, and he suggested that when they had arrived at a decision they might endeavour to provide a practical solution of the difficulty.

The Week's Work.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

The Peach and Nectarine.—In continuance of my remarks upon Peaches and Nectarines, it may be remarked that in this part the trees are retaining their foliage to a later date than usual, but as soon as it begins to change colour, root-pruning, planting, and lifting will begin. If new borders have to be made, the soil, if exhausted or otherwise unsuitable, should be taken away to a depth of 2 feet to 3 feet, and if necessary drainage materials and a 3-inch pipe drain laid at the outer side of the border, and conducted to a main drain or dry well. A border need not be more than 4 feet in width. At Bicton a 9-inch layer of brick-bats, the upper 3 inches being broken small, suffices for drainage. The sort of compost which I recommended for the Apricot-border will be found to suit the Peach and Nectarine. The distance at which to plant the trees depends upon the style of training adopted, oblique single cordons being put at 2 ft. apart, fan-trained trees 16 to 18 ft., riders being planted midway between them, and removed as the others fill up the space. In southern counties the aspects may be east, west, or south, or intermediate between these. At this place the east wall is the most suitable. I give a list of varieties that will afford satisfaction as regards appearance, flavour, and succession. Peaches: Amsden June, Early Alfred, Hale's Early, Rivers' Early, Early York, Condor, Royal George, Stirling Castle, Violette Hâtive, Dymond, Bellegarde, Nectarine Peach, Princess of Wales, Gladstone, and Devonian. Nectarines: Early Rivers, Lord Napier, Elruge, Stanwick Elruge (if the soil is naturally dry and well-drained), Humboldt, Newton, and Spencer. Plant shallow, and be careful to remove all pieces of roots, which if left in the soil are apt to breed injurious fungus.

Plums.—In planting Plums, allow a distance of 12 to 18 feet for standard trees; pyramids and bushes 8 to 10 feet; and if Gooseberries or Currants are planted as an under crop, afford these bushes a distance of 6 feet from plant to plant. The fan-shape, or a modification of it, is the best for trained Plum trees on walls, and these may be planted from 16 to 18 feet apart, according to the character of the growth of the varieties and the height of the wall or fence, the lower the greater the width at which the trees should stand apart. Plums thrive on fairly heavy loam, which should have a considerable quantity of old mortar or plaster, and wood-ashes mixed with the staple or new material. Walls with a north aspect should be planted with culinary varieties. Good varieties for cooking: Rivers' Early Prolific and Czar, Early Orleans, Prince Engelbert, Pond's Seedling, Victoria, Magnum Bonum, Denbigh, Monarch, Belle de Septembre, Diamond, Grand Duke, Archduke, Wyedale, one of the latest of Plums. For dessert: Old Green Gage, Denniston's Superb, Transparent Gage, Angelina Burdett, Golden Transparent, Jefferson's, Washington, Kirke's, Comte d'Atthems, Reine Claude de Bavay, and Coe's Golden Drop. For standards, bushes, &c., Victoria, Pond's Seedling; several of the Gages are sometimes met with carrying good crops, notably Jefferson, Bryanston, Golden Oullins, and Transparent. Among the Damsons are the Farleigh Prolific, Bradley's King, and Cheshire; Shepherd's Bullace is the best, it does well as a standard, its fruit makes an excellent preserve, and the tree may be planted in exposed positions, or as a shelter to the better varieties of Plums. [The little yellow fruited Mirabella Plum, a useful and pretty variety, should not be omitted. ED.]

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq. Sherborne Castle, Dorsetshire.

Autumn-sown Cabbage.—Owing to the exceptionally mild weather experienced, the latest raised plants of early varieties for setting out in spring have grown to so large a size, that it will be advisable to transplant them now, and thus apply a check to growth that will enable them to withstand hard frost without injury. In this garden, land will be bastard trenched which has carried Beetroots and Carrots, first affording it a heavy dressing of rotten manure, as after the Cabbage-crop is taken the land will be in good heart for planting with late sown Brussels Sprouts. The plants should be set out at the same distance apart as I advised for the earlier planting, viz., 21 inches from row to row, and 15 inches apart in the row.

French Beans.—In order to keep up a supply of beans, sowings should be made at intervals of two to three weeks, in pots not exceeding 8 inches in diameter, the compost used being spent Melon-bed soil and dung, as prepared for forming Mushroom-beds, which should contain sufficient moisture to cause the seed to germinate and push through the soil without the necessity of applying water. If the plants can be grown on shelves placed near the roof-glass, and in a house or pit having a minimum night temperature of 60°, growth will be sturdy, and the crop of beans greater than when higher temperatures are employed. A good set of pods being obtained, the warmth may be increased 5°, and more humidity afforded in the air. On bright days syringe the plants lightly.

Horseradish should be replanted annually, and in order to obtain good roots in one season the beds should be prepared and planted forthwith. My practice is to make beds 6 feet wide, raised somewhat above the surrounding level, the soil of which is thrown out to the depth of 2 feet, and half-rotted manure to the depth of 1 foot is placed at the bottom and trodden down, and the excavated soil returned to the hole. This operation will raise the bed considerably; and such a bed will take four rows of sets at 18 inches apart, the sets being planted at 1 foot apart in the rows. The best kind of Horseradish sets are straight pieces of the roots about 1 foot in length, with all the small roots rubbed off. The new beds being levelled and made firm, open a trench at one end of the bed that was made last year, and trench out all of the roots, and from these select the new sets. The planting is done with a dibber, and the top of the set brought to within 1 inch of the surface. The holes may be filled with road-grit or charred garden-refuse. The remainder of the stock of roots may be laid in any convenient place for current use.

Turnips.—The earlier sowings, now full grown, should be pulled and stored in the manner advised in a previous Calendar. Later sowings should be left where they are growing till sharp frosts threaten. The bulbs of Chirk Castle and Orange Jelly are not injured in an ordinary winter when left in the ground.

Salads.—Lettuce and Endive that are fit for use must be protected from frost, and small batches of the latter, if outdoors, may be taken up, and put into the Mushroom-house to get blanched, which will economise those placed under glass some time ago. Tie up loosely and cover with clean flower-pots small batches of those planted in the orchard-house or in pits and frames. Tie up Bath Cos Lettuce to blanch, and protect from frost these and Cabbage-Lettuces growing in cold pits or frames. Remove the lights entirely

during mild weather from the pits containing successions of Lettuce. Take up and store Chicory-roots in the same manner as Turnips, so that they may be got at during hard frosts, and keep batches of them potted-up; also roots of Dandelion, and place these in cellars or in the Mushroom-house, in quantities according to the demand.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Hard-Wooded Plants require much attention during the interval when growth is at its slowest, and as mildew and fog work injury especially to Heaths, remedies must be applied, and means found to mitigate these evils. Artificial heat should only be used to exclude frost, and even then it should only just serve its purpose. Good results in the cultivation of Heaths, Epacrises and New Holland plants generally, can only be obtained by careful attention to routine, affording water at the actual time when the plants need it, and then only in the early morning hours, and mopping up the floors before nightfall, so as to preserve a buoyant and healthy atmosphere in the greenhouse, and having this in mind, the ventilators should never be entirely closed, and in favourable weather air must be afforded freely.

Humeas.—The conditions recommended for hard-wooded plants suit the Humea, and the careful application of water is necessary to bring them through the winter months without the loss of leaves that usually accompanies a wet soil. The leaves must be kept dry, and should not therefore be exposed to drip. Moreover, the plants should not be crowded together, or surrounded closely with others.

Succulents.—Epiphyllums, Phyllocactus, and succulents generally should now be kept in a dry condition, which will suffice to carry them through the winter safely.

Cyclamens.—These plants in all stages of growth should be placed near to the roof-glass in a light house or pit, and such as are coming into flower may receive weak guano-water. Plants intended to be kept for flowering another year should have the old flower-stems pulled out, not cut off; but for ordinary purposes it may be questioned if the plants are worth keeping, the best results being obtained from well-grown one-year-old plants. Check green-fly by frequent vapourisings of XL-All, or fumigation with Tobacco, and being especially careful not to use these of too great strength, very young plants especially being readily crippled.

Ferns.—In cool ferneries the quantity of water afforded the plants at the root must be greatly reduced. Sometimes the fernery is kept at a temperature higher than is good for the plants; as a consequence there is considerable evaporation of moisture from the soil, which calls for the application of more water than is required in an unheated or cool-house.

Lily of the Valley.—Non-retarded crowns being now obtainable at the nurseries and florists' shops, such crowns should be potted as soon as received, and the pots plunged to the rims in fine coal-ashes, or in soil in the open air, covering them with green, fresh moss until they are needed for forcing, which will be about six weeks before the flowers are wanted. While being forced, the Lily of the Valley requires a steady bottom-heat of 85° to 90°. Retarded crowns are deficient in stamina, and as they have to produce leaves and flowers simultaneously, the effort is greater than is the case with ordinary crowns. Weak spikes may be much strengthened if one or more leaves are cut off before the flowers develop.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Cœlogyne cristata.—The growth of the new pseudo-bulbs being now completed, a very little moisture in the compost will prevent shrivelling till the flowers begin to develop, when a small addition to the water-supply will be necessary. Place the plants in a light part of the intermediate-house.

Cœlogyne speciosa.—This quaint and almost continuous flowering species should never suffer from lack of water. Repotting when it is necessary should be carried out in the spring or summer months, at which time roots are forming. The best sort of compost for this plant consists of equal parts of peat, loam, and leaf-mould, intermixed with small crocks; and the drainage should be ample. It is a plant that is injured by disturbance, and unless repotting is really necessary, owing to the compost having got into a bad state, it suffices to remove the sour surface soil, replacing it with fresh.

Cœlogyne flaccida, C. ocellata, C. ochracea.—These species should be afforded a slight rest now that the pseudo-bulbs have ceased to increase in size, and the plants retained in their proper quarters—the intermediate-house, and the usual amount of water afforded reduced to just as much as will keep the pseudo-bulbs plump.

Anguloas.—The growth now being at an end, complete rest may be afforded till growth is renewed in the spring. The cool intermediate-house is the best place for Anguloas, provided a spot can be found for them away from the heating apparatus. The plants keep in perfect condition without water being afforded.

Lycaste Skinneri.—Such of these plants as are showing for flower should be placed in a light position in a cool intermediate house; and those which have not made good growth should be deprived of their flowers, or at the most, two may be left to expand, and then be removed. The flowers are easily spoiled in a damp house, and it is advisable to place the flowering examples in a part of the house that is rather dry. Apply water when the compost has become decidedly dry.

Lycaste cruenta, L. aromatica, and L. candida.—If the new pseudo-bulbs have almost ceased to increase in size, keep the compost rather dry in the cool intermediate house; and if the compost recommended in the Calendar for May 24 was employed, a very small quantity of water will suffice to preserve the plants in good condition; but if it consist of peat and sphagnum, then a larger quantity of water will be required.

Vandas and Aërides.—Scarcely any water is required by either of these species for four months, a simple damping between the pots on fine days sufficing to maintain them in health; and if water should seem to be needed, it will be enough if only the surface of the compost be rendered moist. If the house in which these plants are placed is humid, and the air not stagnant, they will winter satisfactorily, provided the compost is dryish.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Unheated Peach and Orchard Houses.—The bright, mild weather of the last three weeks has in some measure compensated for the previous lack of sunshine, and every glint of sunshine should be made the most of, in order to mature the young wood. Trees which are filled with shoots should have those shoots which have borne fruit removed, and all leaves that part readily from the shoots brushed off. The inside borders should be kept moist, affording water if necessary; and if made of light soil, adding drainings from the cowshed, largely diluted. If red-spider infest the foliage, fumigate slightly with flowers-of-sulphur if there are no plants in the house. For trees infested with scale, syringe twice or oftener during winter with soapy water in which a wineglassful of paraffin per gallon is mixed, agitating it vigorously whilst applying it; and for mealy-bug, dab infested parts with a small brush dipped in methylated spirits. The present is a suitable season for transplanting and lifting trees, and making borders. Every garden should possess a stock of Peach and other trees for planting in the houses whenever fresh trees are found necessary. Such trees, if carefully lifted, can be removed without soil attached to the roots and planted in turfy loam. Again, some of the young Peach and Plum trees in these cold houses may be making too much wood, and stand in need of a check, which is best afforded by lifting and replanting them in the same or other places, strong roots growing downwards being removed or bent to the horizontal, and brought near to the top of the border. If any trees are of weak growth it is probably due to the poverty of the soil, therefore wheel it out and replace it with the best old pasture loam, to which is added one-eighth of the whole of lime-rubble. The depth of a border should not exceed 2½ feet, and if artificial drainage be needed—not always the case, give a layer of brickbats, chalk chips, coal, clinkers, or similar materials, and place a drain of tiles or pipes at the lowest part. If a border containing aged trees is not progressing satisfactorily, apply bone meal, 4 to 6 ozs. per square yard, and Vine-manure in the quantity advised by the makers, merely pricking these into the soil. Orchard-houses being partially empty in the winter, they are readily cleansed in every part, outside and inside, and the walls lime-washed. The Plum, Cherry, and Pear-trees may be pruned, and cleansed with a brush and soapsuds. Peach-trees should not be pruned till the more severe frosts are over.

The Second-early Peach-house.—Prune and cleanse trees, and coat them with an insecticide, such as the XL-All liquid, or Gishurst Compound-soap, at the rate of 3 ozs. per gallon of water. The interior of the house may be syringed with a mixture of paraffin and soapsuds. Examine borders, and see that the soil is moist to the very bottom before applying a surface dressing.

THE VOYAGE OF M. D. BOIS.—M. D. BOIS, assistant of the Chaire de Culture, at the Museum d'histoire Naturelle, and Secretary-Editor of the *Société Nationale l'Horticulture de France*, is leaving for Tonkin. He is sent out from the Museum to take part in a Congress of Orientalists at Hansi, and by the Horticultural Society to visit the International Exhibition to be held in that town. He proposes to visit Java also. M. BOIS is well qualified to represent the interests of French horticulture, to study the resources of Indo-China and the progress made by the large French colony.

WINTER-FLOWERING LILAC.—We read in *Möller's Deutsche Gärtner Zeitung*, that the variety Marly, when grafted, produces plenty of flower-buds, but the spikes are very short. For cutting purposes, the writer prefers this variety on its own roots, and obtained by division. Seedlings are not suitable for early forcing, and should only be employed late in the season when less importance is laid upon the form of the flower-spike, or the endurance of the flowers.

THE ST. PETERSBURG BOTANIC GARDEN.—Interesting statistics concerning the Imperial Botanic Garden at St. Petersburg, are given in the Reports for 1901 and reprinted in a recent bulletin. We learn that, at the beginning of the present year, there were 35,141 species, varieties and sorts of living plants in the garden, forming nearly 120,000 specimens. This total included 27,690 species and varieties of indoor plants, in all 81,216 specimens in forty-four cool and hot houses. Further, there were 320 frames. The number of open air plants is 1,235 species and varieties of trees and shrubs, 4,581 of herbaceous perennials, and 1,470 of annual plants. The seed-loft at the same time contained 3,550 kinds of seeds. During the year 1901, the garden received in exchange 8,071 sets of seeds and sent out 11,519 packets. The herbarium includes more than 7,000 covers, and more than a million and-a-half of dried plants. The botanical museum holds a collection of 27,591 fruits, a dendrological collection of 7,294, and a palæontological collection of 2,091 specimens, while the vegetable products on view number 4,327. The library contains 14,608 books, or 29,520 volumes. The report also chronicles the results obtained in the biological laboratory, the seed-testing station, the central phytopathological station, and the other departments of this large and busy centre.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

SALES FOR THE WEEK:

MONDAY to FRIDAY, NOVEMBER 24 to 28—
Dutch Bulbs, by Protheroe & Morris, at 67 & 68, Cheapside, E.C., at 11 o'clock.

MONDAY, NOVEMBER 24—
Bulbs, Plants, &c., at Stevens' Rooms.—Unreserved Clearance Sale of Glass Erections, Plants, and Stock, at The Nursery, Harrow Road, Sudbury, near Harrow, by order of Mr. H. Haydon, by Protheroe & Morris, at 12 o'clock.

TUESDAY, NOVEMBER 25—
Orchids at the Town Hall, Berkhamsted, Mr. J. W. Orchard, at 2 p.m. Clearance Sale of Nursery Stock at Crastock Farm, Woking, by Protheroe & Morris, at 12 o'clock.

WEDNESDAY, NOVEMBER 26—
Fruit Trees at Perry Hill, Cliffe, near Rochester, by order of Messrs. W. Horne & Sons, by Protheroe & Morris.—Roses, Plants, &c., at 67 & 68 Cheapside, E.C., by Protheroe & Morris, at 3.30.—Bulbs, &c., at Stevens' Rooms, 12 30

THURSDAY, NOVEMBER 27.—
Fruit Trees at Perry Hill, Cliffe, near Rochester, by order of Messrs. W. Horne & Sons, by Protherce & Morris.

FRIDAY, NOVEMBER 28—
Importation of Orchids, &c., at 67 & 68, Cheapside, E C, by Protheroe & Morris, at 12 30.—Orchids, by Mr. J. Cowan, at the City Hall, Eberle Street, Liverpool, at 12 30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick—41·4°.

ACTUAL TEMPERATURES:—
LONDON.—*November* 19 (6 P.M.): Max. 38°; Min. 33°.
November 20 (Noon).—Cold; dry.
PROVINCES.—*November* 19 (6 P.M.): Max. 43°, East Scotland; Min. 33°, East England.

The Horticultural Hall.

BY the courtesy of the zealous Secretary of the Royal Horticultural Society we are enabled to lay before our readers some illustrations of the building which it is proposed to erect in Vincent Square, Westminster, in celebration of the Centenary of the Society. We have in a former number given a sketch-plan showing the locality in which the building is proposed to be erected, so that we need only repeat that the site is as good as could be hoped for in a neighbourhood that is rapidly improving, and within a very short distance from Victoria Street and the present offices of the Society. The design is simple and appropriate; the portion of the building facing the square is allotted to lecture-rooms, committee-rooms, and library. Behind this façade is the great exhibition hall, well lighted, and measuring 142 feet in length by 75 in width, with two annexes, each 47 by 24 feet; thus giving a total area of 11,778 square feet, as compared to the 7,000 square feet in the Drill Hall now used—none too much as experience has proved, but all that the site will permit.

Ingress and egress, together with lifts, both for visitors and for plants, are suitably provided for. Cloak-rooms for ladies and lavatories, as well as means for storage, are afforded in the basement, whilst the Secretary's and other offices are placed on the second floor, a somewhat inconvenient arrangement.

We see no special provision for an office for the gardening charities, which we should be glad to see housed in the building, even if a small rental were charged for their use.

The several special Societies, all of which we hope to see under one roof, will probably find their temporary requirements fulfilled in one or other of the Committee-rooms.

Provision is made for ventilating the Hall, and some arrangement could be made for shading the roof in summer.

No doubt modifications can be made in the plans if thought desirable. In the meantime, the scheme as proposed will afford vastly better accommodation than is now provided.

Special precautions will, we hope, be taken to guard against the risk of fire, in connection with which matter we must demur to the open timber roof to the library, and should prefer some less combustible construction. It must be remembered that the Library belonging to the Lindley Trustees, and housed in the Society's Rooms, is at once the most valuable asset, and the one least capable of replacement in case of fire.

In all probability the Council will welcome any well-considered suggestions; and what is certain is, that the Treasurer is yearning for further subscriptions, in order that the scheme may be carried out thoroughly and well. An excellent beginning has been made. Royal sympathy has been shown in the most practical manner. It now rests with the rank and file of horticulturists to do their duty—and it *is* a plain duty, not a mere optional exercise of good will.

A general meeting of horticulturists might be called early in the New Year, or at some other convenient season, to take steps to secure liberal subscriptions, especially from those who benefit most by the project, and to support the Society in every way towards the attainment of this most desirable end.

CAMPANULA PYRAMIDALIS, AT MOOR HALL, STOURPORT (Supplementary Illustration).—Our illustration affords a good idea of the decorative value of this old inhabitant of our gardens when well-grown in large pots, and is a reproduction from a photograph obligingly sent by Mr. H. H. WILSON, gr. to JOHN BRINTON, Esq., of Moor Hall, Stourport. The plants are of the white-flowered variety, and were raised from seeds, and grown out-of-doors till they were potted in March last. The tallest is 8 feet and the shortest 5½ feet, and the greatest number of flower-spikes on a plant is thirty. The picture was taken in the month of July.

ROYAL HORTICULTURAL SOCIETY: FIXTURES FOR 1903.—A preliminary list just to hand contains some interesting particulars. A Hyacinth and Tulip show will be held on March 24; the National Auricula and Primula Society's show will take place at the Drill Hall on April 21; there will be a show of British Tulips and a Conference on May 19; the Temple Flower Show will be held on May 26, 27, 28; on June 25 and 26 there will be an exhibition in the grounds at Holland House, Kensington; the National Carnation and Picotee Society's show at the Drill Hall on July 25; and the National Dahlia Society's show at the Drill Hall on September 1 and 2. It appears that there will be no Fruit Show at the Crystal Palace next year, but it will take place at Chiswick on September 29, 30, and October 1; there will be a show of Vegetables and a Conference at the same time. There will also be ordinary meetings at the Drill Hall on January 13, 27; February 10, 24; March 10, 24; April 7, 21; May 19, 26; June 9; July 7, 25; August 4, 18; September 1, 15; October 13, 27; November 10, 24; and December 15.

GARDENERS' LIBRARY AT EDMONTON.—In connection with the Middlesex County Council's School of Gardening, a garden library has been established at Pymme's Park, Edmonton. It already contains a good selection of the best books on gardening and botany, and is open for the benefit of gardeners on Tuesday and Thursday evenings from 7.30 to 9.30, upon application to—Mr. J. WEATHERS, County Instructor in Horticulture, Pymme's Park, Edmonton.

PRESENTATION TO MR. A. D. RICHARDSON.—Advantage was taken on Thursday, 13th inst., of the Edinburgh Chrysanthemum Show, to present a testimonial, which took the shape of an album and purse of sovereigns, to Mr. A. D. RICHARDSON, who lately retired from the charge of the Royal Botanic Gardens, Edinburgh, to enter on business for himself as a landscape gardener. The presentation was made on behalf of the subscribers, by BAILLIE MACKENZIE (of MACKENZIE & MONCUR, LTD.), in the presence of a gathering representative of gardeners, foresters, nurserymen, &c. In addition to his work as head gardener, Mr. RICHARDSON delivered (under Professor BALFOUR'S scheme of instruction for foresters and gardeners), several courses of lectures on forest botany, surveying, and meteorology, and his former pupils were glad of the opportunity of joining with Mr. RICHARDSON'S wide circle of friends, in presenting him on this occasion with some tangible proof of their regard.

THE FRUITERERS' COMPANY AND FRUIT PACKING.—This well-known City Company recently invited a competition in essays on "Fruit and Vegetable Packing for Market Sale by Small Growers and Cottagers," the prize being the sum of 25 guineas and the Company's Gold Medal. Eight essays were sent in, subject to the conditions that none were to exceed 25,000 words, and that the one selected for the prize was to become the property of the Company, and if advised by the judges, to be published. The selected judges were Messrs. ASSBEE, of Covent Garden; G. GORDON, V.M.H.; and A. DEAN, of the Royal Horticultural Society's Fruit Committee. After all the essays had been carefully read through, the judges unanimously awarded the prize to the one marked, "Work, Think, and Observe," which not only extended to the full number of words permitted, and was also most legibly written, but also included numerous plain but instructive drawings illustrative of many of the points in the essay. The envelopes enclosing the competitors' names were, when the judgment was arrived at, opened by Mr. Eagleton, the clerk to the company, when it was found to have in it the name of Mr. LEWIS CASTLE, formerly of the *Journal of Horticulture*, and now manager of the Duke of BEDFORD'S experimental fruit farm, Ridgmont, Bedfordshire, who therefore is entitled to our warmest congratulations. Without doubt, Mr. CASTLE'S early press experiences aided him materially in composing and lucidly arranging his matter, and it is interesting to learn that the judges were not only greatly pleased with the essay as being so much the best, but strongly advised its early publication by the company. Official notice of this occurrence only reached us on the 19th, as we were going to press.

"THE GARDEN GAZETTE" is the title of a newly established journal published in Melbourne. It is of quarto size, well printed, and well illustrated. The present number contains an illustrated account of the Melbourne Botanic Garden, under the management of Mr. GUILFOYLE, to whose praiseworthy labours we have had occasion to refer on other occasions. The ubiquitous Chrys-

Campanula pyramidalis, white variety, from the Gardens, Moor Hall, Stourport.

anthemum stares us in the face, though if there is one quarter of the globe in which we would rather not see Chrysanthemums it is Australia. The Australians are not of that opinion, and it must be ungrudgingly conceded that they have taken up the culture with such zeal, skill, and judgment, that many of the best of the newly-introduced varieties come from Australia. Still, in the interests of variety and progress, we hope our new contemporary will lend its powerful aid in the development of the native flowers of Australia, and do for the inhabitants of the newest world what generations of gardeners have done for the flowers of other countries.

"THE SCOTTISH FIELD."—Commencing with January next, a new monthly magazine, devoted to sports and country life generally in Scotland, is to be published from Glasgow. Horticulture will form one of the features of the new venture, the title of which is to be *The Scottish Field*.

HORTICULTURAL AND AGRICULTURAL PROGRESS IN BARBADOS.—It is always satisfactory to note progress in the trade of our Colonies—particularly in the West Indies. We learn from recently published figures that the value of the exports of dried, preserved, and fresh fruit and vegetables for 1901 was £6,452; and that of plants, shrubs, and seeds, £2,549, making a total of £9,001—the total export value from Barbados being £950,175 for the year 1901.

VISIT TO WOOLPITS, EWHURST, SURREY.—On Sunday afternoon, 16th inst., Mr. H. L. DOULTON, kindly threw open his gardens and conservatories at Woolpits to the public, a large number of the residents availing themselves of the invitation. The grounds appeared very pretty in their autumn garb. The various glass-houses are filled with choice flowering plants, including zonal Pelargoniums. Woolpits is charmingly situated on the side of a hill, and overlooks an extensive tract of woodland and the weald of Sussex as far as the South Downs.

MINIATURE RIFLE CLUBS.—The Society of Working-Men's Rifle Clubs has been formed, under the presidency of Earl ROBERTS, for the purpose of affording facilities to the working-classes to become skilled in the handling of the rifle. It is proposed that miniature rifle clubs shall be formed in various centres, and that these be affiliated with the general Society. The scheme has already met with considerable approval and success, and full particulars may be obtained from the Secretary, 17, Victoria Street, Westminster.

THE HORTICULTURAL CLUB.—This Club held its usual bi-monthly dinner at the Hotel Windsor, on Thursday the 18th, under the chairmanship of Mr. HARRY J. VEITCH, in the absence of Sir JOHN LLEWELYN, Bart., the President of the Club. Some thirty odd members and friends were present, and a very enjoyable and instructive evening was spent, Mr. J. C. STEVENS, the well-known auctioneer, fulfilling his promise to give a lantern exhibition of a number of his remarkable floral and animal photographs. This promise he more than redeemed by showing a very large number of photographs of a very varied character, so varied indeed that the lantern being on the dissolving system, the resulting changes were often extremely amusing. The first series were especially interesting as exemplifying tree developments at definite periods, three views showing an avenue at Mr. STEVENS' house, which was planted by himself, and photographed from the same point at intervals of five, fifteen, and twenty-five years. This series concluded with a transformation of the full-foliage summer aspect, to the bare-branched, snowy, wintry one. Magnificent specimens of Orchids, Lilies, Roses, and other floral groups, most artistically arranged in beautiful vases, alternated with groups of cats, dogs, rabbits, poultry, &c., which absolutely seemed alive, so solid were the photographic effects achieved by Mr. STEVENS' system of subtle lighting. A number of cats evolved much amusement, long-haired Persians and short-haired tabbies, fluffy pure white ones and glossy coal-black ones (more difficult to photograph together), being described as brothers and sisters, though the very antipodes of each other in appearance. The exhibition throughout was enhanced by Mr. STEVENS' anecdotes and illustrative remarks anent curios, such as the Great Auk and its eggs, Charles I.'s bloodstained shirt, a group of dried Maori heads, &c., which figured as curios among the other photographs. Mr. GOLBY, a visitor, added a series of chromographic floral photos, taken by himself; and a very interesting discussion, in which Mr. SHEA and others took part, succeeded the very hearty vote of thanks which was accorded.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The fourth annual concert in aid of the funds of the above horticultural charity is being organised by Mr. A. J. BROWN, F.R.H.S., one of the local honorary secretaries. The concert will take place on Thursday next, November 27, at 8 P.M., in the Constitutional Hall, Chertsey. The following ladies and gentlemen, amongst others, have already accorded their patronage to the forthcoming concert:—Rev. E. R. Parr and Mrs. Parr, H. C. Leigh Bennett, Esq., M.P.; Lawrence J. Baker, Esq., and Mrs. Baker; D. E. Higham, Esq., and Mrs. Higham; H. E. Paine, Esq.; Mrs. Hawksley, Mrs. Thomas, Gilbert D. Jennings, Esq., and Mrs. Jennings; Rev. J. Spensley, F. J. Marnham, Esq. All particulars relating to the work of the Charity will be supplied on application to G. J. INGRAM, Secretary of the Society, 175, Victoria Street, London, S.W.

GROWTH OF POTATO TUBERS.—The object of VOCHTING's latest researches into the formation of tubers was to study the effects of external conditions on the development of Potato tubers. The French variety of Potato, known as "Marjolin," was considered to be the most suitable. With regard to temperature, it was found that an optimum temperature of 25° C. caused a rapid development of roots, and later, leafy shoots from the tuber; while at a low temperature, about 6° C., the roots formed were few and weak, and no leafy shoots were produced but only secondary tubers. Similar results were obtained when the amount of water in the soil was varied. When water was plentiful roots and leafy shoots were formed, but if the quantity was so small that the plant was enabled to retain it in spite of the osmotic attraction of the sap in the root hairs, then tubers were developed. Also experiments were made with dry and moist conditions of the air while the soil was kept wet. In dry air the shoots crept along the surface of the ground, that is they were hydrotropic, and the leaves were reduced to scales. The author offers an explanation of his results based on the heat of combustion of dextrose, starch, and cellulose. *Botanische Zeitung*, 60, 87, *ex Journal of the Pharmaceutical Society*.

ROYAL BOTANIC GARDENS, REGENT'S PARK, N.W.—At a meeting of the Council of the Royal Botanic Society of London on the 8th inst., a vote of thanks was passed through the chairman to Mr. E. F. HAWES, the head gardener, for the satisfactory manner in which he is carrying out various repairs and improvements in the gardens. The Council have sanctioned a scheme whereby the botanical collection arranged in their natural orders will be completely revised, and a standard collection of typical plants for botanical study on the spot will be formed.

VANILLA.—The *Bulletin* of the Botanical Department, Trinidad, No. 35, dated August, 1902, contains an essay on "The Cultivation and Preparation of Vanilla," by Mr. A. MCFARLANE, a grower in Tahiti. The flowers of V. planifolia remain open only for one day, and their fertilisation is effected by girls, who manage to operate on about 2,000 flowers a day, on the average. Anyone can grow Vanilla, we are told, but the curing of the pods is much more difficult, and if not done satisfactorily, all the previous labour is lost. Colonists should carefully study this important *Bulletin*. The same subject is treated of in the *Bulletin* of the Botanical Department of Jamaica, part viii., 1902.

LIVERPOOL BOTANIC GARDENS.—The large span-roofed show-house in these gardens is filled with a representative collection of Chrysanthemums, which are grown in quantity so as to extend over as long a period as possible, and the blooms are quite up to exhibition quality. Begonia Gloire de Lorraine is one of the chief features, been grown by the hundred, and occupying the front stages of the warmer houses and also suspended in baskets. The somewhat rare stove shrub Mascarenhasia Curnowiana was observed flowering profusely. This plant has been in flower more or less for the past three months. Davallia aculeata succeeds very well here, and Mr. GUTTRIDGE (Curator) has this lovely species planted out and trained up the roof, a plan which suits it admirably.

ETHER IN FORCING PLANTS.—We have on various occasions called attention to the process of etherisation in expediting the forcing of Lilacs. Some remarkable illustrations are given in the *Jardin* of October 20, showing the effects of subjecting the plants to the vapour of ether. The illustrations show plants subjected to ether and others not so, but otherwise grown under the same conditions. After eighteen days' forcing, the Lilacs "Souvenir de Louis Spath" were provided with leaves and flowering freely. These are contrasted with plants forced for twenty days, but not etherised. There is shown not only an advance of ten days, but a production of three times the amount of flower. The plants in the nursery of Mr. HARMS, of Hamburg, are placed in an hermetically sealed case. Sulphuric ether is introduced in a vessel open at the top, and suspended from the interior of the case. The vapour descends even to the soil, which must therefore be kept dry. The plants are exposed to the ether vapour for forty-eight hours, the time of exposure and the quantity of ether used varying according to time, temperature, &c. On removal from the ether, the plants are removed to an ordinary forcing-house, when after three or four days the flower-buds commence to expand, and after eight days more the inflorescence is fully developed. It is greatly to be hoped that our ROCHFORDS and other market-growers will adopt this system, or at least try it, for according to the statements made, there is great economy effected in time, labour, and material. We do not, we confess, understand how the actual quantity of bloom can be increased, though its development might be enhanced and hastened.

ROTHAMSTED SOILS.—On behalf of the LAWES Agricultural Trust Committee, Dr. BERNARD DYER visited the United States to deliver some lectures on the results of investigations on the Rothamsted soil. It will be remembered that Sir JOHN LAWES provided in a trust deed for the periodical delivery in America of lectures explanatory of the Rothamsted experiments. In accordance with this provision, Prof. WARINGTON visited America in 1891, the late Sir HENRY GILBERT in 1893, and Prof. ARMSTRONG in 1897, whilst in 1900 the task fell to Dr. BERNARD DYER. He dealt with the chemistry of the

Wheat soils during fifty years. The United States Department of Agriculture has now printed Dr. DYER's lectures, which contain a summary of the several investigations, a summary for the preparation of which Dr. DYER acknowledges his great indebtedness both to Sir JOHN LAWES and to Sir HENRY GILBERT.

THE OPENING OF TULIP FLOWERS.—The *Botanisches Centralblatt*, No. 41, 1902, contains a reference to Prof. FARMER's paper on this subject. The author alludes to the well-known phenomenon of the opening or closing of Tulips when exposed to different temperatures. There is good evidence to show that these manifestations are due to the presence of tissue on the outer face of each perianth-segment capable of swelling up and becoming more or less turgescent, thus effecting the movement, which is independent of growth. We may add that several years ago, when some experimental trials were being made in the gardens at South Kensington with the electric light, we induced the opening of some Tulip or Crocus flowers (we do not remember which) by exposing them to the light through a double layer of glass, so that in this case it was the light rather than the heat which caused the expansion of the flowers.

"CASSELL'S DICTIONARY OF GARDENING" has got as far as the letter T. The publication will be very serviceable to beginners. It is nicely got up, and well illustrated.

"PERPETUAL" CRIMSON RAMBLER.—The *Revue Horticole* makes mention of a continuously blooming form of this Rose. Should this tendency be perpetuated, it will add an additional attraction to this favourite plant.

CANADIAN FARM AND GARDEN PRODUCE IN LONDON.—In the window of the office of the Canadian Pacific Railway at King William Street are now being exhibited some very interesting specimens of fruit and vegetables from the beautiful and fertile valley of the Thompson river, situated at Kamloops, B.C., on the main line of the Canadian Pacific Railway. This valley is owned by the Canadian Real Properties, Limited, whose head offices are in London, and it is being rapidly transformed from a barren waste into beautiful fruit farms, where abundant crops can be raised by the aid of irrigation, and is a striking testimony to the great fertility of the soil in this neighbourhood. This land has been lying idle for a number of years, but is now being rapidly reclaimed and converted into thriving homesteads.

"THE AUSTRALIAN GARDENER" is the title of a new monthly journal published at Adelaide, South Australia. The contents are varied and instructive, type and paper are good, and the illustrations illustrate. Good luck to our Australian compeer.

CEYLON.—The current number of the *Revue de l'Horticulture Belge* contains the beginning of an article relating to the establishment and work of botanic gardens in Ceylon. The article is from the pen of M. LEON PYNAERT, the second son of the much-lamented EDWARD PYNAERT.

FORESTRY MUSEUM AT BRUSSELS.—The *Revue de l'Horticulture Belge*, for November, contains reference to the new museum established in the Brussels Botanic Garden, and intended to illustrate the species grown for timber in Belgium, their diseases, their cultivation, their utilisation, and their commercial value. The specimens are chosen with care, and arranged according to a definite plan, which allows of the principal facts relating to each tree to be readily compared with those concerning other species.

STOCK-TAKING: OCTOBER.—The Board of Trade returns for the past month contrast favourably with those for the same period in 1901—£2,502,927 represents the increased value of imports, which foot up at £46,854,330, as against £44,351,403 for the month of October, 1901. The "summary" table figures are always of value; the following excerpt may be taken as proof:—

IMPORTS.	1901.	1902.	Difference.
	£	£	£
Total value ...	44,351,403	46,854,330	+2,502,927
(A.) Articles of food and drink—duty free	8,887,668	9,053,201	+165,533
(B.) Articles of food & drink—dutiable	10,310,596	10,877,350	+566,754
Raw materials for textile manufactures	4,188,551	5,552,704	+1,364,153
Raw materials for sundry industries and manufactures	5,353,345	5,669,221	+315,876
(A.) Miscellaneous articles	1,436,215	1,096,681	−339,534
(B.) Parcel Post ...	81,457	126,266	+44,809

In making up the increase column, articles used in textile manufactures figure largely—cotton and wool, to wit—the former from every exporting Cotton field in the world. For the first time noted here, Apples show an increase of £233,000, followed by Hops, dried fruit, Tobacco, and metal manufactures, including an import of motor-cars to the value of £103,000. Last month we noted a large increase of the imports under "wood and timber"; this month there is again an increase to report on all kinds, from furniture woods to battens. In October of last year the total value was given at £2,321,763; last month the figures were £3,020,121, or an increase of £698,358. Among the items in the decrease column of food supplies we find sugar, which has fallen £419,928, followed by Tea for £94,650. There are some extraordinary figures in the following table, relating to fruit, roots, and vegetables:—

IMPORTS.	1901.	1902.	Difference.
Fruits, raw:—	Cwt.	Cwt.	Cwt.
Apples	298,840	640,739	+341,899
Apricots and Peaches	230	441	+211
Bananas... bunches	222,349	315,278	+92,929
Grapes	280,797	322,981	+42,184
Lemons	72,468	52,871	−19,597
Nuts—Almonds ...	27,494	32,702	+5,208
Others, used as food	170,540	87,853	−82,687
Oranges...	90,856	116,434	+25,568
Pears	48,649	122,244	+73,595
Plums	987	91,079	+90,092
Unenumerated, raw...	46,729	47,124	+395
Fruits, dried—			
Currants, for home consumption ...	214,128	307,336	+93,208
Raisins „	156,766	184,384	+27,618
Vegetables, raw:—			
Onions ... ...bush.	713,816	914,754	+200,938
Potatos ... ... cwt.	153,845	505,956	+352,111
Tomatos... ... „	37,490	40,513	+3,023
Vegetables, raw, unenumerated ...value	£13,789	£19,980	+£6,191

It is not Apples alone that will claim the attention of the fruit growers as well as the general community. In the "difference" column the "minus" quantity promises to become as the Dodo. The imports for the past ten months figure at £435,709,350 as against £428,745,972 for the same period last year, showing an increase of £6,963,378. We now come to the item of—

EXPORTS,

which show an increase of £1,166,195 over the same period in 1901, thus obtained:—October 1901, £23,983,636; October 1902, £25,149,831. The items of "increase" include articles of wearing apparel, which continue to gain in favour; metals and articles manufactured therefrom; coals have been affected by the condition of labour in the United States; and in the harvest of the sea we note an increase of £117,599 in the value of herrings exported! Finally the exports for the past ten months are valued at £234,663,502 against £233,126,676 for the same period last year, showing a gain of £1,536,826.

HOME CORRESPONDENCE.

GARDENERS AND THEIR EMPLOYERS.—I was pleased to read "J. D. G.'s" recent note on this matter, and I agree with him in everything he states. I have experienced a good many of the ups and downs of a gardener's life, and I have found that when working for an employer who understands a little of gardening, it is somewhat of a pleasure. For not only will he get you the varied material to work with, but he will watch and share with you the pleasure of any little improvement, and is ever ready to ask or listen to anything that will tend to improve the garden. But on the other hand, when working for an employer who neither considers his gardener nor his garden, then the man's lot is a hard one. He is expected to grow everything, and everything must be of the best, without considering whether there are the necessary materials wherewith to get it. If an association can be formed on "J. D. G.'s" lines, it would be of inestimable benefit to gardeners themselves, and a source of satisfaction to employers, who would then be pretty sure of getting the sort of gardener that was required. *B. J. W.*

DENDROMETER.—To most of us concerned with trees, both ornamental and woodland, it is a great convenience to have a handy means of determining the height of any particular specimen. For this purpose Messrs. Negretti & Zambra, the famous opticians, sell a most useful little instrument called a dendrometer, which is wonderfully accurate, and yet sufficiently small as to be carried in the vest pocket. I have tested this dendrometer and am greatly pleased with the results, and can confidently recommend it to anyone requiring such an instrument. *A. C. Bartlett, gr., Pencarrow, Bodmin.*

CALOCHORTUS OR MARIPOSA LILIES.—I heartily endorse the warm appreciation of "F. W. B." (see p. 271 of the *Gard. Chron.*), concerning these beautiful flowers. It is quite true that only now and again are they seen—not worthily represented in gardens, which is rare, but even grown at all. The reason for this is difficult to ascertain, particularly when we remember how much appreciated are the blooms seen at the early summer shows. No firm perhaps has specialised this group in the same degree as the Messrs. Wallace of Colchester, as witness year by year not only the fine selections at the Temple Show produced in pots rather in advance of their natural season, but also later on in the cut state. Indeed, I am of opinion that it is due to Messrs. Wallace that the finest forms and species are placed before the Floral Committee of the Royal Horticultural Society. The great beauty to be seen in the Eldorado group is quite remarkable. There is, however, a difficulty in growing them more generally in gardens, as they flower only once; even so, they are worthy of attention, as was pointed out by "F. W. B." The bulbs are not safe if left in the ground the year round, though in the warmer parts of the south and west this may safely be done. The best plan—one I would adopt in the Isle of Wight—is that of lifting the bulbs each year, thus affording them a complete rest. This rest may be prolonged to a greater extent with more safety than some gardeners believe possible. Some dealers recommend planting in October and November. This may be a necessity for collected roots, but it is certainly not desirable for home-grown or purchased roots, and for these latter the middle of the month of January, or even the end of the following month is better. The chief drawback to early autumn planting, and of collected roots in particular, is the quickness with which the growth appears, due

doubtless to the bulbs having come from a much warmer clime than ours, and to their having received a long enforced rest in transit, &c., so that the bulbs are ready to start as soon as they are put into the soil. It is due to these circumstances that the growth appears above ground at the opening of our often humid English winter. Snow often breaks down the fragile stems, and the plants never quite recover from the injury. For these reasons I would not hesitate to keep even the freshly collected bulbs so long in dry sand, so that by the time growth appears any danger from snowstorms would be past. A spot should be selected where the drainage is perfect, and the soil deep. One characteristic of these plants may be worth noting, viz., the formation of surface or stem bulbs. Often at the surface or below an elongated bulb, may be found a number of bulblets, which on a fair sized bed produce quite a number, independent of the stock below ground. But where this is not known or noticed, these surface bulbs are usually killed by frost. In spite of the long season of enforced rest which I here recommend, I find in my district at least that the varieties so rested flower with greater vigour and freedom than those that remain in the soil, a fact I have frequently observed. *E. Jenkins, Hampton Hill.*

RAINFALL AND WEATHER OF OCTOBER.—According to the Rothamsted gauge, the rainfall for the month of October just ended amounts to 1·88 in., the result of sixteen rainy days. But owing to the heavy deposits of dew, the gauge recorded a measureable quantity of water on each of the thirty-one days of the month. The average rainfall for October at Rothamsted during the past forty years is 3·2 inches, consequently this year October has given a deficiency of 1·32 in., which is equal to about 133½ tons of water deficient on each acre of land. The shortage of water in this locality is becoming more alarming month by month. For some time there has been a steady shrinkage of streams and drying up of wells; there are instances where wells have been deepened 50 feet in the effort to follow the disappearing water, and even there the depth of water continues to decrease. The characteristic feature of the month of October has been its remarkable mildness; we have certainly experienced in this neighbourhood what is known as "the little St. Luke's summer," and although the warmth has been in no ways exceptional, either during the daytime or at night, and on four occasions frost has been registered on the grass, on the 19th of the month 4° being recorded, yet Roses and Dahlias have continued to produce abundance of blooms. Garden Peas have in several gardens been gathered in quantity, and a second crop of Broad Beans and of Scarlet Runner Beans have in some gardens in this neighbourhood been produced. *J. J. Willis, Harpenden.*

BLUE HYDRANGEAS.—I have been greatly interested in the several articles appearing in the *Gardeners' Chronicle* as to the cause and effects of the Hydrangea changing its colour from pink to blue. For years I had believed, like Mr. Bennett, that the blue colour was produced by the soil; last year my theory as regards this effect was greatly strengthened by a journey to Scotland. In visiting several of the large gardens there, I found where Hydrangeas were grown they all produced the blue colour, while several of my gardening friends said it was a very rare occurrence to find the pink colour in the Aberdeen district. This year my soil theory has been greatly shaken with the flowering of the Hydrangeas here. I have in the gardens here a very old plant, probably twenty years old, growing in a large tub, which has during the past ten years annually produced flowers of the pink colour; this last season, instead of the pink trusses appearing, my plant has shown grandly fifty trusses of deep blue flowers, some of a little lighter shade than others, while one or two retained a slight shade of pink. As to what has caused the change of colour I have not the slightest clue, the plant having received just the same kind of treatment as hitherto. I cannot quite agree with Mr. Bartlett's theory as to light and shade, for my plant has occupied the same summer spot these last ten years—unless it is the absence of bright sunlight in the present year. I may add that cuttings taken from this same old plant all produced the pink flowers. *G. C., Copt Hall Gardens, Mill Hill, N.W.*

—— The correspondence which has appeared in the columns of the *Gardeners' Chronicle* during the past few weeks, regarding blue Hydrangeas, is a subject which I fear will want a lot of thrashing out, to get at a satisfactory solution. Some nine years ago I had a batch of plants potted-up in a good free compost, and placed under some trellised Peach-trees in a second-early house, where ample shade was provided until they came into flower. Several of the plants were an intense azure-blue, and others pink, the former remaining so for two years, when the colour gradually passed away. Alum-water and iron filings were tried without success, and half-a-dozen plants were also potted in various composts; but no good results, although the shading principle was still persisted in. A friend of mine, now deceased, adopted the same position for his plants, and however they were potted, never failed to secure plenty of blue flowers. It was a subject we often tried to fathom, as mine failed to come up to expectations; nevertheless, he was firmly of opinion that shade was the important element. *Orchid.*

A GARDENER'S CO-OPERATIVE SCHEME.—Your correspondent "A. D.," in the issue of the *Gardeners' Chronicle* for November 1, draws a most melancholy picture, yet true, of disappointed gardeners seeking work and finding none. Most sad and distressing, as he describes this state of affairs, yet if that is so to the outsider, what must it be to the gardeners themselves, and those dependent on them. Yet I do not think as "A. D." does, that we are all helpless in facing the fact, that considerably over one thousand gardeners applied for a situation, and all had to be refused, save one, nor is it impossible to find a remedy, as "A. D." would have us believe. There is hope, and there is a remedy. Now, let us consider the number who applied for the situation mentioned before, considerably over one thousand, and only one being required. The number of applicants for this one place being revealed, plainly shows there must be some thousands of gardeners throughout the country more than are required to fill the vacant places. Now, I ask gardeners, are we to sit down and fold our hands in despair? It is high time to wake up, with the determination to end such a miserable state of affairs. The point then is, a scheme for the employment of gardeners must be started, and started without delay. I propose that gardeners interested shall form a Gardeners' Co-operative Company for the raising of nursery and market-garden produce. Land and glasshouses could be obtained, and arrangements made for the disposal of the produce when grown, all workers to share in the profits, allowing a sufficient sum to remain for working expenses, and a certain amount for reserve fund. "This is all very well," you will say; "yet the gardeners would have to live until their produce was ready for disposal." Certainly, wages would have to be paid, so money would be required to start the concern; and if the scheme was decided on, there should be no difficulty in raising sufficient of the needful to make a good start. A meeting of those interested might be held in London, and gardeners invited to join the scheme; under good management, there is no reason why such an undertaking should not prove a success. Once set it going, and I am sure there would be friends on all sides willing to help with money, and with patronage. Such a scheme would save gardeners from enforced idleness. Now I leave the proposal to the consideration of gardeners, and the friends of gardeners. The time has arrived for something to be done. *T. P.*

BLACK CURRANT, BOSKOOP GIANT.—Having noticed recently some remarks on planting Black Currants, of which only the ordinary well-known types were mentioned, I would like to call the attention of intending planters to the very fine Currant mentioned above. It is absolutely the largest-fruiting variety I know of, it carries a big bunch of fruit, and is very prolific. Plants which I bought in the spring of 1900 fruited heavily in 1901 and this year, and the bushes are at the least double the size of those of other varieties, such as Baldwin's, Lee's Prolific, and Black Naples, bought in at the same time. It has one fault, consequent on its rapid growth namely, the bushes are liable to split at the base of the branches; but once this fault is detected, it is easy to fasten the main branches to short Bamboo or other stakes. There is no doubt about its being a grand variety. *J. C. Tallack.*

MILD WEATHER IN IRELAND—On November 4, a line of Dahlias consisting of about fifty plants stands perfectly uninjured by frost, and is as bright as could be seen in previous years a month earlier. I have known this district for about seventeen years, during which time we have not experienced a similar autumn. Even the Heliotrope has not been cut down, although like the Dahlias quite unprotected. *C. Price, The Gardens, Mitchelstown Castle, Mitchelstown, co. Cork.* [The blooms were perfectly good and fresh. ED.]

SCATTERED KEWITES MEET AT THE DRILL HALL.—Amongst the visitors at the Drill Hall, Westminster, on Tuesday last, were three past Kewites, who are at present enjoying a visit home from the far-off places in which they are working hard for horticulture and the good fame of Kew. Their names are Robert Derry, Superintendent of the State Gardens, Perak, Malay Peninsula, who left Kew in 1883; Walter Fox, Assistant Superintendent of the Botanic Gardens, Singapore, who left Kew in 1897; and George T. Lane, Curator, Botanic Gardens, Calcutta, who left Kew in 1891. Amongst others who are at present in England is Mr. W. J. Thompson, Superintendent of Castleton Gardens, Jamaica, who left Kew in 1889. Kew men who work at home (including journalists) are always glad to shake the hands of their scattered colleagues on the Royal Horticultural Society's "Tuesdays."

EMILE RODIGAS.

ONE more leaflet fallen from the "Four-leaved Clover." Our older readers will remember the zeal and activity in horticultural matters displayed and maintained to the last by MM. Van Hulle, Ed. Pynaert, Em. Rodigas, and Burvenich, all Professors in the Ghent School of Horticulture, and most prominent members of the Cercle d'Arboriculture and other Belgian societies, and to whom the epithet we have mentioned was applied. Their enterprise and industry were unflagging. Naturally they were best known in this country to the members of the press, who constantly profited by the writings and teachings of their Belgian colleagues; but visitors to successive "Quinquennials" will also retain a lively remembrance of their activity, helpfulness, and hospitality. Nor were they unknown here. They all formed part of the great Congress of 1866. Some of them, if not all, were our guests in July, 1882, when they spent a week here with several of their fellows, headed by the genial and learned Count de Kerchove.

If the gentlemen named were the leaflets, the Count was the leaf-stalk, binding them together in one common effort for the promotion of horticulture, and the welfare of their countrymen. Three of the four leaflets have fallen, one remains (M. Burvenich), and the Count still retains his love for gardening and gardeners, and still happily exerts his stimulating influence in all that concerns horticulture. The ensuing Quinquennial must needs be tinged with sorrow, but regrets for the past will not, so long as he is at the head, be allowed to slacken the efforts for the present, nor dim the hopes of the future.

M. Emile Rodigas, whose death on the 14th inst. we have now to record, was one of the most active and prolific writers and workers in horticulture. He was born in Ghent in 1831, the son of a father also distinguished as a botanist and horticulturist. When we first knew him, or soon after, he was the Director of the Zoological Garden in Ghent, an office he filled with such

conspicuous ability, that on the death of Prof. Kickx he was appointed in his place as Director of the State School of Horticulture, an institution originally conducted in connection with Van Houtte's famous establishment, where Decaisne, Planchon, Crépin, and many other men who rose to eminence, were Professors. For many years the Ghent school stood alone, and several of our nurserymen availed themselves of it by sending their sons to receive instruction, which at that time they could not get in their own country. M. Edgar Rodigas is now a Professor in the School, and may be looked to, to carry on the traditions and emulate the example of his lamented father.

SOCIETIES.

ROYAL HORTICULTURAL.

NOVEMBER 18.—The ordinary fortnightly meeting of the Committees of this Society was held on Tuesday last, in the Drill Hall, Buckingham Gate, Westminster, when there was again a very fine display of exhibits.

THE ORCHID COMMITTEE had before it a grand collection of Orchids, sent by Captain HOLFORD, of Westonbirt. In view of the extremely cold east winds, it was somewhat risky to transport one of the largest collections there has been shown at the Drill Hall for a very long time, but we hope the plants have escaped serious injury. In addition to this collection, there were many interesting exhibits of new and rare Orchids.

The FLORAL COMMITTEE recommended one First-class Certificate, and six Awards of Merit. There were imposing groups of Chrysanthemums, and Awards of Merit were gained by four new varieties.

Messrs. JAS. VEITCH & SONS' winter-flowering Begonias were among the brightest exhibits in the hall, and one of the varieties, Agatha compacta, gained an Award of Merit. The same firm had a pretty group of the Acanthaceous plant, Jacobinia (Cyrtanthera) chrysostephana, and this was awarded a First-class Certificate.

A group of Platyceriums was shown by Messrs. J. HILL & SONS.

THE FRUIT AND VEGETABLE COMMITTEE made no awards to the novelties submitted, and the only collection of fruit was one from Messrs. J. PEED & SONS.

In the afternoon there were elected forty-one new Fellows, and a lecture was delivered by Mr. CECIL HOOPER upon "Spraying Fruit Trees in Canada, and the gathering and packing of fruits in the same Colony."

Floral Committee.

Present: W. Marshall, Esq. (Chairman), and Messrs. H. B. May, C. T. Druery, Geo. Nicholson, R. Dean, J. Jennings, W. Howe, G. Reuthe, C. Dixon, R. W. Wallace, C. R. Fielder, W. Bain, C. Jeffries, H. J. Cutbush, R. C. Notcutt, C. E. Shea, E. H. Jenkins, C. Elick, H. Turner, G. Paul, Ed. Mawley, J. H. Fitt, H. J. Jones, and F. Page Roberts (Rev.).

Messrs. H. CANNELL & SONS, Swanley, Kent, exhibited some first-class plants of Begonia Gloire de Lorraine. The plants were in 6-inch pots, and were nearly 2 feet high, being quite covered with flowers. The variety Turnford Hall was similarly represented. A few large blooms of exhibition Chrysanthemums were also shown (Silver Banksian Medal).

Messrs. J. HILL & SONS, Barrowfield Nursery, Lower Edmonton, made a grand exhibit of Platyceriums, in which a large number of plants were contained. There were good specimens of P. æthiopicum, P. Hilli, P. alcicorne, P. grande, P. Veitchi, P. Willincki, and a small plant of P. angolense, &c. (Silver gilt Flora Medal).

Messrs. JAS. VEITCH & SONS, Royal Exotic Nursery, King's Road, Chelsea, filled the whole of one side of a long central table with a magnificent exhibit of their new winter-flowering Begonias, hybrids of B. socotrana, crossed with tuberous-rooted varieties. Nothing could excel the abundance and brilliance of these flowers. The varieties were Julius, semi double flowers, pink shade of colour; Mrs. Heal, rich carmine-crimson, single flowers, very free, the best of the lot; Ensign, semi-double, rose colour, shaded purple; John Heal, a dwarf-growing variety, with smaller single flowers, produced well above the foliage; Winter Perfection, semi-double, more purple in colour than most of them; and Agatha (B. socotrana × B. Moonlight), with single flowers, very similar in colour to those of Gloire de Lorraine (Silver-gilt Flora Medal).

Messrs. WM. BULL & SONS, 536, King's Road, Chelsea, exhibited a few plants of the delicately tinted Epiphyllum delicatum, a new species, which was given a First-class Certificate on November 22, 1898, under another name, now superseded.

E. MAWLEY, Esq., Rosebank, Berkhamsted, showed some fine Roses from the open. Such specimens are very seldom procurable upon November 18, and they were a striking testimony to the genial weather of the autumn (Vote of Thanks).

Messrs. W. CUTBUSH & SONS, Highgate Nurseries, London, N., exhibited some blooms of winter-flowering Carnations, remarkable for their clear, pure colours. Amongst these were Duchess of Portland, pink; G. H. Crane, crimson, fringed; General Roosevelt, maroon-crimson; Stella, a very large white-ground flower edged and streaked with red; Mrs. S. J. Brooks, white; Mrs. Thomas W. Lawson (American), exceedingly good in colour and size; Ladysmith, &c.

A variegated Violet named Armandine Millett, with leaves having a margin of white, was shown from the open ground by Mr. G. SNEIDER, 17, Ifield Road, Fulham, London, S.W.

Messrs. BARR & SONS, King Street, Covent Garden, London, W.C., had a novel exhibit in four glass cases, containing models of Narcissus flowers in wax. These were strikingly good, such standard varieties and novelties as Peter Barr, Glory of Leiden, M. J. Berkeley, Monarch, and Weardale Perfection, were exceedingly true to life in form and shade of colour. A few flowers of Chrysanthemum and Schizostylis coccinea, &c., were shown by the same firm.

From Lady TWEEDMOUTH, Brook House, Park Lane, London, W., were shown excellent blooms of the varieties of Souvenir de la Malmaison Carnation, Princess of Wales, Sir Chas. Freemantle, and the old blush variety, &c., which were remarkable for their large size and well developed colours (Vote of thanks).

CHRYSANTHEMUMS.

Messrs. W. WELLS & Co. Ltd, Earlswood Nurseries, Redhill, Surrey, exhibited a collection of Chrysanthemum blooms on boards, about ten dozen specimens, in which the majority of first-class novelties were included. W. R. Church, General Hutton, Mrs. E. Thirkell, Miss Brown, Calvat's Sun, and Mrs. T. W. Pockett, figured conspicuously, and there were numerous others. A pretty variety named Leila Filkins is described under "Awards." Three blooms of the new bronze-coloured incurved Pantia Ralli were shown, one of which was judged to be the premier incurved bloom at the Edinburgh show. A large number of single and other decorative varieties were shown as long sprays, and formed a pretty background for the large Japanese blooms. An incurved Japanese named W. Duckham, of a shade of colour similar to that of the National Chrysanthemum Society's Jubilee, promises to become a valuable variety. It is from Australian seed (Silver-gilt Flora Medal).

Mr. H. J. JONES, of the Ryecroft Nurseries, Hither Green, Lewisham, made an elaborate exhibit of Chrysanthemums on one half of the length of one of the central tables. In the centre of the table were three great vases 5 feet high above the table. The centre one was furnished with Japanese blooms of several shades of yellow and crimson, and the other two contained pale lilac or pink coloured Japanese flowers. Below the flowers drooped bronze coloured Fern fronds, &c. At either end of the exhibit there were two handsome vases nearly 3 feet high, all of them filled with white Japanese blooms of the variety Dorothy Pywell. As single blooms in vases were many novelties, and among others we noticed those following:—Mrs. J. C. Neville, white Japanese; Lily Mountford, Mrs. F. Judson, white incurved; Mrs. A. McKinley, William Higgs, incurved; C. Jarvis, rosy-purple Japanese; Emlyn Beauty, reddish-crimson reflexed Japanese; H. J. Gillingham, yellow; Western King, &c. There were also many fine single and Pompon varieties (Silver-gilt Banksian Medal).

G. FERGUSON, Esq., The Hollies, Weybridge (gr, Mr. F. W. Smith), exhibited about thirty-six bouquets of single-flowered Chrysanthemums in vases, including a number of pretty seedling varieties. These were well grown, and tastefully displayed specimens.

Mr. W. SEWARD, Hanwell, Middlesex, showed a large purple Japanese Chrysanthemum, with slightly incurving florets.

Messrs. GARRAWAY & Co., Clifton, near Bristol, also exhibited several seedling varieties of Chrysanthemum.

Mr. HENRY PERKINS, Greenlands Gardens, Henley-on-Thames, showed several good seedling Chrysanthemums, including Edith Smith, a large white Japanese, with lemon tint in centre; very promising.

G. W. BIRD, Esq., Manor House, West Wickham (gr., Mr. H. Ridden), exhibited two very large single-flowered varieties; one which was yellow was named J. F. McLeod, and the other, a bronze-coloured one, J. C. Knight.

Awards.

Begonia Agatha compacta.—A very dwarf-growing variety of "Agatha," which has single flowers of same colour as those of B. Gloire de Lorraine. The variety compacta has numerous short growths, less than 1 foot in height. The growths being so numerous, the display of rather small, rich pink-coloured flowers is most prodigal. From Messrs. JAS. VEITCH & SONS, Royal Exotic Nurseries, Chelsea (First-class Certificate).

Carnation Viscount Kitchener.—This is a first-class winter-flowering Carnation, with large, finely-formed flowers and good petals, having a white ground edged and streaked with red. Shown by Messrs. W. CUTBUSH & SON, Highgate, N. (Award of Merit).

Chrysanthemum Belle of Weybridge.—A large single flowered variety with two rows of fluted florets; colour rich brownish-crimson. Recommended an Award of Merit as a decorative variety. From F. FERGUSON, Esq., (gr., Mr. F. W. Smith).

Chrysanthemum Miss E. Seward.—This is a deep yellow-coloured incurved variety, showing a little bronze colour on the reverse of the florets. From Mr. W. SEWARD, Hanwell (Award of Merit).

Chrysanthemum Leila Filkins.—A reflexing Japanese of much refinement. Colour a very delicate and pretty shade of purple. A most commendable type of bloom. From Messrs. W. WELLS & Co. (Award of Merit).

Chrysanthemum F. S. Vallis.—A large yellow Japanese, already seen at some of the exhibitions. Shown by Messrs. W. WELLS & Co. (Award of Merit).

Jacobinia (Cyrtanthera) chrysostephana.—A very pretty decorative stove plant, introduced from Mexico in 1870. It has green ovate-acuminate leaves, with red midrib and nerves on under side. The showy orange-yellow coloured flowers are produced in a crown-like corymb at the ends of the shoots. The plant is one of the many pretty Acanthaceous species, so much neglected in gardens. Messrs. JAS. VEITCH & SONS' plants were in 5-inch pots, possessed two or three growths each, and were about 1½ foot high (Award of Merit).

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. Jas. O'Brien (Hon. Sec.), Norman C. Cookson, H. Little, de B. Crawshay, J. Colman, H. A. Tracy, F. A. Rehder, F. W. Ashton, J. F. Moore, W. A. Bilney, E. Hill, J. Douglas, J. W. Odell, J. Cypher, W. Boxall, H. J. Chapman, W. H. Young, H. Ballantine, and W. H. White.

There was a very fine show of Orchids, and the splendid group staged by Capt. G. L. HOLFORD, C.I.E., Westonbirt, Tetbury (Orchid grower, Mr. H. Alexander), was awarded a large Gold Medal. This was one of the finest groups ever staged in the hall, as well as one of the best in regard to arrangement. The salient features of the group consisted of plants of Oncidium varicosum mixed with Bambusa gracilis, two clumps of various forms of Cattleya labiata, a large specimen plant of C. Bowringiana, a clump of good Vanda cœrulea, and effectively arranged the graceful flower-spikes of Oncidium crispum, O. tigrinum, Cymbidium Tracyanum with three fine spikes, and other showy species. The rest of the plants consisted chiefly of well grown and flowered Cypripediums, bearing about 500 flowers, well displayed above the healthy foliage of the plants, and so placed that comparisons were readily made. Of Cypripediums there were noted C. insigne, "Harefield Hall variety," one specimen having four flowers; C. i. Holfordianum, of the same class, and with similar although brighter coloured flowers, of a dark yellow, marked with red-brown. The fine dorsal sepal is pure white in the lower half, the lower greenish, and spotted with purple, changing to pink on the white portion; fine plants of C. i. Sanderiana, with fine flowers; C. i. Sanderianum, C. i. Dorothy, C. i. Standard, C. i. Westonbirt var., C. i. montanum aureum, C. i. citrinum, C. i. aureum, C. i. punctatum violaceum, with eleven flowers; C. i. Youngianum, C. i. Dormani, C. i. Ballii, C. i. Luciani, &c. The forms of C. × Lecanum were shown in fine specimens with many flowers. They included C. × Lecanum × Burford variety, C. × L. magnificum, C. × L. superbum, C. × L. Westonbirt var., C. × L. Albertianum, C. × L. giganteum, a grand plant with fourteen flowers; and others. The hybrids, which

were equally fine, were C. × Mandiæ magnificum, C. × Niobe magnificum, C. × M. de Carte, C. × Lawrebel, C. × Euryades, C. × Arthurianum pulchellum, C. × Cyris, C. × Acteus, C. × Io-grande, and others.

Mr. Jas. Cypher, Cheltenham, secured a Silver-gilt Flora Medal for a very fine and large group, consisting principally of Cypripediums, including C. insigne Harefield Hall var., C. i. Sanderæ and Sanderianum, C. i. hybrids, the only First class Certificate plant of the day—Lælio-Cattleya × Thorntoni grandiflora being found therein (see Awards); also L.-C. × Haroldiana superba, a grand flower, with purplish-rose lip and yellow tinted sepals and petals; the fine L.-C. × Statteriana superba, L.-C. × Lady Rothschild, L.-C. × Bletchleyensis, L.-C. × Pallas, L.-C × C. G. Roebling, L.-C. × Tiresias, Lælia × Mrs. Gratrix, Cattleya × with rose-purple tinge, and spotting on the petals. C. × Morganiæ, Oakwood variety, with three fine spikes, and C. insigne "Harefield Hall." Cattleya labiata Oakwoodiensis was very distinct and suggestive of hybridity, its claret-crimson lip being uniform in colour, and without the yellow disc usually seen in the species. Calanthe × Kenneth is white, with purple eye; C. × triumphans, crimson, with ruby eye and

Fig. 130.—BULBOPHYLLUM ERICSSONI: FLOWERS GREEN WITH PURPLE SPOTS, LIP YELLOW WITH RED SPOT. A AND B SHOW THE SIDES OF THE COLUMN AND THE LIP. (SEE P. 384).

(Shown at the meeting of the Royal Horticultural Society on Tuesday last.)

ornatum, a very pretty variety; C. i. punctatum violaceum, good C. × nitens, C. × Arthurianum, varieties of C. × Leeanum, of which the large and distinct C. L. virginale, in which the greater part of the dorsal sepal is pure white; C. × Fascinator, C. × Niobe, and other Cypripediums; Masdevallia × Heathi, M. racemosa, M. × Hincksiana, and M. macrura; some Sophronitis, and three dissimilar plants of Dendrobium × Ethel.

Messrs. Jas. Veitch & Sons, Chelsea, were voted a Silver Flora Medal for an excellent group of showy Mantini, the new Cypripedium × Thalia, and some plants of Cypripedium insigne Sanderæ, bearing together thirteen flowers.

Norman C. Cookson, Esq., Oakwood, Wylam-on-Tyne (gr., Mr. H. J. Chapman) received a Silver Banksian Medal for a select group, the best plants in which were fine specimens of Cypripedium insigne Sanderæ with eight flowers, and a plant of the improvement upon it raised from true seeds by Mr. Cookson and named C. i. Sanderæ "home-raised." C. × Youngianum superbiens was a massive and prettily marked flower, white nearly white sepals. Other good subjects noted were Cypripedium × Leeanum Clinkaberryanum, C. × Niobe, C. × Norma, C. × Chapmani, C. × Olivia, and Lælio-Cattleya × bella.

Messrs. Sander & Sons, nurserymen, St. Albans, were awarded a Silver Banksian Medal, for a group including the new and fine Cypripedium Transvaal superbum, illustrated in last issue of the *Gardeners' Chronicle*, p. 361; C. × Massaianum superbum, with several fine flowers; C. × Niobe-Leeanum, C. × nanum (Leeanum giganteum × Lathamianum), C. × Leeanum

"Jas. Hamilton," a splendid darkly coloured flower, with fine white dorsal sepal; Lælio-Cattleya × Bletchleyensis, L.-C. × Helena, L.-C. × Decia, L.-C. × Bowringiana-Clive, Odontoglossum×tripadio crispum, cream-white, with brown blotches; Cypripedium Tracyanum, &c.

Baron Sir H. SCHRODER, The Dell, Staines (gr., Mr. H. Ballantine), showed a fine Odontoglossum×Rolfeæ, and O × Harryano-crispum var. giganteum, a large cream-white flower, tinted rose and blotched with purple.

FRANCIS WELLESLEY, Esq., Westfield, Woking (gr., Mr. Gilbert), sent Lælia × Gilberti, a supposed natural hybrid of L. tenebrosa, with light rose-tinted flower, with purplish-rose front to the lip; also the fine yellow Cypripedium insigne citrinum, Vanda cœrulea, "Westfield variety," beautifully tinged and netted with bright blue; and four forms of Cypripedium × Leeanum.

J. GURNEY FOWLER, Esq., Glebelands, South Woodford (gr., Mr. J. Davis), again showed in fine flower, his plant of Dendrobium Wardianum Fowleri, which had previously received an Award. The peculiarity consists in the lower sepals imitating the labellum in colour and form. The variety thus far has proved constant.

Mr. H. A. TRACEY, Twickenham, showed Cypripedium insigne Traceyæ of good form, and distinctly marked.

P. BURKINSHAW, Esq., Hessle, Hull (gr., Mr. Barker), sent Cypripedium insigne "Harefield Hall," C.T. "Hessle variety," C. × Prospero, and C. × Goweri magnificum.

Messrs. HUGH LOW & Co., showed Cypripedium insigne "Harefield Hall," C. × Leeanum var., C. insigne Sanderæ, and a flower of Cattleya labiata Amesiana.

Dr. MISKEN, Slade House, Kennington Road, sent Cattleya × Hardyana "Misken's variety," which will probably, when developed, prove to be C. aurea marmorata.

W. E. WALLACE, Esq., Eaton Bray, sent Cypripedium insigne Wallace's variety.

H. GASKELL, Esq., Woolton Wood (gr., Mr. Corbett), showed two hybrid Cypripediums.

H. WHATELEY, Esq., Kenilworth, sent Dendrobium Phalænopsis Priory Lawn variety, a large purplish-rose flower of good quality.

The Right Hon. J. CHAMBERLAIN, Birmingham (gr., Mr. Mackay), sent flowers of Lælio-Cattleya × Mariæ (L. Digbyana × C. Warneri), white tinged with rose, and with a purple spot on the lip.

Awards.

FIRST-CLASS CERTIFICATE.

Lælio-Cattleya × *Thorntoni grandiflora* (L. Digbyana × C. Gaskelliana), from Messrs. JAS. VEITCH & SONS, Chelsea.—A grand variety, worthy to rank next to the famous L. × Edward VII.; flower large, sepals and petals well developed, bright rosy-lilac; lip of great size, dark lilac-rose, with greenish-primrose disc, and finely fringed margin.

AWARDS OF MERIT.

Lælio-Cattleya × *Statteriana superba* (C. labiata × L. Perrini), from Messrs. JAS. VEITCH & SONS, Chelsea.—Flowers much larger than others of its class. Sepals and petals bright rose; front of the lip well expanded, and ruby purple in colour.

Lælio Cattleya × *Clive var Sanderæ* (= L. pumila alba × C. Dowiana aurea).—A charming flower, with white sepals and petals, delicately tinged in places with pink. Front of the lip rosy-crimson.

Cattleya × *Fabia Vigeriana* (= C. Dowiana aurea × C. labiata flammea), from M. CHAS. MARON, Brunoy, France.—A fine hybrid, with rose crimson flowers, darkest on the front of the labellum, which had golden lines at the base.

Calanthe × *Triumphans*, from NORMAN C. COOKSON Esq., Oakwood, Wylam. A worthy addition to Mr. COOKSON'S race of hybrids with colours verging on blood-red, this one being ruby-red, tinged with rose, the sepals nearly white, and giving an effective contrast to the rest of the flower.

BOTANICAL CERTIFICATE.

Bulbophyllum Ericssoni, from the Hon. WALTER ROTHSCHILD, Tring Park (gr., Mr. E. Hill). A wonderful and large species from New Guinea (see fig. 130, p. 383). The large umbel of wax-like flowers, with octopus like arrangement of the sepaline tails, greenish spotted with purple. The column and large mobile labellum cream-white, marked with purple.

CULTURAL COMMENDATION.

To Captain G. L. HOLFORD, C.I.E., for an enormous specimen of a fine variety of Cattleya Bowringiana with ten spikes, with, in all, 108 flowers, the largest spike bearing twenty-six.

To Captain G. L. HOLFORD, C.I.E., for a splendid plant of Cypripedium × Leeanum giganteum with fourteen flowers.

Fruit and Vegetable Committee.

Present: Geo. Bunyard, Esq., chairman; and Messrs. J. Cheal, S. Mortimer, A. Dean, Ed. Beckett, H. J. Wright, M. Gleeson, H. Markham, J. Willard, F. Q. Lane, G. Norman, Jas. Smith, A. H. Pearson, W. Poupart, and Geo. Wythes.

Messrs. J. PEED & SONS, Roupell Park Nurseries, West Norwood, S.E., exhibited a collection of 150 dishes of Apples and Pears, in which there were good specimens of all the popular varieties at present in season (Silver Banksian Medal).

Messrs. JAS. VEITCH & SONS, Chelsea, exhibited some fruits of a conical, yellow coloured Crab, named Langley Crab, obtained from a cross between John Downie × Apple King of the Pippins. The fruits hang a longer time upon the tree than those of most varieties. Also heavily fruited sprays of their new Raspberry November Abundance (figured on p. 375). Messrs. JAS. VEITCH & SONS had also a collection of Borecoles, in which Veitch's Exhibition, Veitch's New Sprouting, Ragged Jack, &c., were conspicuous.

Pears, Winter Nelis, grown on the Quince stock, were shown by Mr. JNO. CROOK, Forde Abbey Gardens, Chard.

Mr. G. REUTHE, Feltham, showed two large fruits of Imperial Quince.

Sir WALTER GILBEY, Bt. (gr., Mr. William Plester), showed fruits of Tomato Italian Wonder, of deep red colour, and bottle-shaped.

Apple, Allington Pippin, was exhibited well by Mr. R. W. WALLACE, of Colchester.

A seedling Melon, having green flesh, shown by ARTHUR W. SUTTON, Esq., Bucklebury Place, Woolhampton (gr., Mr. A. Wright), possessed remarkable flavour for so late a date in the season.

DONCASTER CHRYSANTHEMUM.

NOVEMBER 5, 6.—The Doncaster Chrysanthemum Show is too old established to need any apology for its existence, but even that popular Society, though managed by the most capable and able committee cannot withstand a backward or adverse season, and so the tenth exhibition which was held in the spacious Corn Exchange, on the 5th and 6th inst., did not equal in all respects its predecessors. Still, it was a fine show and a credit to town and district.

In the open class, the 1st prize for the best group of Chrysanthemums arranged for effect, and a Gold Medal presented by Mr. H. J. Jones, Lewisham, was secured by Mr. J. Raper, gr. to Mr. C. W. BLAGDEN, Hill House; and the 2nd was awarded to Mr. Butcher, gr. to Mr. W. CHADWICK, Arksey.

Though the groups of Chrysanthemums were not up to the average, that was not the case with the cut blooms, for they were exceedingly fine and beautiful, the Japanese and incurveds being of much excellence, and Mr. A. Alderman, gr. to Mr C. D. ELLIS, of Worksop, had the honour of securing the premier prizes for the tenth time in succession. The winner had a close competitor in Mr. G. West, gr. to Sir W. COOKE, Wheatley Hall, who came within four points of a possible fifty.

For the miscellaneous plants arranged for effect, the 1st prize was given to Mr. Hill, gr. to the Hon. Mrs. WOOD, Melton Park, for a group which was very beautiful both in bloom and arrangement.

ORCHIDS always attract attention, and the awards went to Mr. J. RAPER and Mr. H. Foster, gr. to Mr. R. E. BECKETT, The Lodge.

In the local class there was a very fine show of Chrysanthemums, and groups interspersed with foliage plants deserved very high praise. This was particularly the case with the group arranged by Mr. H. FOSTER, of The Lodge, which was tastefully arranged to show to the best advantage. In the group of Chrysanthemums was a Palm in the centre. Mr. BELLWOOD, of Field House, had a magnificent display and won easily. The amateurs were highly favoured two special prizes being offered for them, and the cup given by the President, W. J. Huntriss, Esq., for the best six Chrysanthemums, grown by an amateur, was won by Mr. H. G. ATKINSON, of Bentley; a Silver Medal, given by Mr. G. A. Keywood for six cut blooms, being also won by Mr. ATKINSON.

Mr. W. CHUCK, gr., Brodsworth Hall, won in the class for black Grapes, with a splendid bunch of Gros Colman, the Black Alicantes from Melton Hall being a good 2nd.

The winning collections of fruit were remarkable for the fine Muscat Grapes which they contained, the winners being Mr. BUTCHER, of Arksey, and Mr. HILL, Melton Park.

Apples were smaller than usual. In kitchen Apples Peasgood's Nonsuch, Bramley Seedling, and Warner's King were the winners; and in the dessert class Ribston Pippins took the first honours. The dessert Pears were Doyenné du Comice and Marie Louise.

Mr. COX, of Doncaster, had on view, for exhibition only, several specimens of Californian Doyenné du Comice, and of Grape fruit from Jamaica, the latter having the flavour of the Grape, Orange, and Lemon.

LINNEAN SOCIETY.

NOVEMBER 6, 1902.—Professor S. H. VINES, F.R.S., President, in the chair. Mr. H. J. ELWES, F.R.S., F.L.S., gave a lecture, illustrated by a specially-prepared map and lantern-slides, entitled "Notes of a Natural History Journey in Chile," which he performed in the winter of 1901-02. He had three main objects: (1) to learn the peculiar conditions which make the fauna and flora of the region so interesting; (2) to collect the Lepidoptera; and also (3) many of the beautiful plants known in cultivation, especially the terrestrial Orchids.

Among recent travellers, the name of Señor Moreno is pre-eminent; the map shown was largely based on his surveys. The earlier travellers included C. Gay, the elder Philippi, Cunningham, J. Ball, and C. Darwin; the observations of the latter are so precise as to leave very little to be gleaned by later visitors. The lecturer therefore confined his remarks to the country which has only recently become accessible, between Mulchen and Puerto Montt.

Mr. Elwes left England in November, 1901, and arrived at Buenos Ayres on December 2, where he was delayed owing to tension between Argentina and Chile. From Buenos Ayres to Santiago is a three days' railway journey, broken by the Andean pass between Puente del Inca and Salto de Soldado, which has to be performed on mules. The season was advanced, but there was enough to show that the forests which cover the mountains and extend into the plain had never clothed the outer valleys, though a six hours' ride into the mountains will bring the traveller to abundant groves of the Chilian "Cypress," Libocedrus chilensis. The most striking plant is Puya cœrulea. On the hillsides large plantations of the Californian Pinus insignis are rapidly changing the aspect of the country. Nothing is more striking in the central valley of Chile traversed by the railway than the wonderful growth of introduced trees, which oust the native plants. Lombardy Poplars form avenues along the country roads; European Oaks, Thistles, and introduced Conifers give the aspect of Italy rather than of South America. This region may rival California as a fruit-producing country.

The Agricultural College at Santiago is excellently found, its equipment surpassing anything in England. The lecturer visited the Baths of Chillan, at an elevation of about 6,000 feet, where many plants and insects were collected; here the Beech forests clothe the mountains, and here also a considerable quantity of the curious Orchid Chloræa was obtained with some difficulty, the long fleshy roots were deeply buried in sand and stones amid the bushes and Bamboo, Chusquea andina; those plants sent to Kew from Concepcion are growing fairly well.

The risk of war by this time having subsided, the lecturer then proceeded to Victoria; at San Ignacio he was detained ten days, but started for the frontier on January 22, 1902. The forest had been cleared for Wheat culture, but continuing the journey, Ferns and other moisture-loving plants were encountered; at Lolco, a farm on the Bio-bio river, many alpine plants were found. From Los Arcos, past Lago Alumine to the Quillen river, few birds were noted, and mammals were very scarce. The extraordinary configuration of the rocks was then mentioned.

Early in February the weather broke, and several wet days ensued. San Martin is described as very beautifully situated, and will probably hereafter be much resorted to by visitors. The edge of the great Patagonian Pampa was reached where the river Limay issues from the Nahuel-Huapi lake; from Puerto Blest to Puerto Montt an easy track is now available, past the shores of Lago Frio, where Fitzroya patagonica was noted; from this lake a magnificent view of Tronador volcano was obtained, whose glaciers on the west side descend to about 2,000 ft. near Casapanque; avalanches were constantly falling from the mountain's precipices, with a noise which gave rise to its name. Here were Beech-trees, and a growth of Gunnera chilensis, on the débris brought down by the glacier, which was found

to be of extreme interest. Lago Todos Santos is buried in forest; from its north-western end the party came to Lago Llanquihue, thence by Pacific Company's steamer to Puerto Montt, calling at Calbuco, Ancud in Chiloe, and *viâ* Concepcion by rail to Santiago and Buenos Ayres.

NATIONAL CHRYSANTHEMUM.

Floral Committee.

NOVEMBER 10.—With the waning of the season come fewer novelties for inspection by this body, while the fine varieties of the past two or three years have furnished a high standard, now seldom equalled.

First-class Certificates were awarded to Mrs. A. R. Knight (Japanese), colour rich yellow, shaded at tips of florets with chestnut-red, shown by Mr. N. MOLYNEUX, Rookesbury Gardens; and to Mrs. J. Seward (incurved), pale sulphur-yellow in colour, with a little dull rose shading towards the base. It is an easily grown variety, and was shown by Mr. W. SEWARD, Hanwell.

NOVEMBER 17,—*First class Certificates of Merit* were awarded to the two varieties following:—Japanese George Mileham, a large and brightly-coloured ruby-crimson flower; the long drooping florets, which curl at the points, have a silvery reverse; from Mr. GEO. MILEHAM, gr., Emlyn House, Leatherhead. Incurved Madge Creagh, the reverse of the florets a bright golden-yellow; and the bloom has the form of a compact ball, and is of excellent build: from Mr. W. SEWARD, The Firs, Hanwell.

Ethel Cobb, a handsome, compact, reflexed flower, white, with a yellow centre, was Commended, as a useful addition to the section. Clara Priest was also shown; it is a large, full, bright yellow reflexed variety, too large to be included in this limited section: from Mr. WALTER COBB, gr., Hood End, Hayes, Middlesex. Lilias Jones, a large-flowered single, of a bright yellow colour, was Commended. Included with this were some other singles of the Mary Anderson type; the two best were Ophir, deep pink, a bright and pretty variety; and James Walton, ruby-crimson, of compact form: from Mr. G. W. FORBES, Regent House, Surbiton.

Market Crimson, a pale ruby-crimson, medium-sized Japanese, sent as a market variety, came from Mr. GEO. CARPENTER, West Hall, Byfleet; it produces its flowers on long, stiff stems. J. Martin, a bright Japanese, was represented by a dozen blooms of a reddish-terra-cotta colour, with a golden-amber reverse; too small for an exhibition flower as shown: from Mr. H. WEEKS, Thrumpton Hall, Derby. Mrs. Dusgate, a pleasing Japanese, pink, suffused with lilac paler at the base. Rose Holbrook, a variety of the Australie type, amaranth, with a silvery reverse; and Elthorne Gem, a bright, deep, reflexed yellow, of which the committee wished to see a plant, came from Mr. W. SEWARD, Hanwell.

BIRMINGHAM CHRYSANTHEMUM.

NOVEMBER 11, 12.—This autumn show was held as usual in Bingley Hall, and like many other similar exhibitions this year, showed a slight falling off in point of numbers. Taken as a whole though, it was a remarkably fine display, and almost filled that magnificent building.

Nurserymen added to the display by sending many noteworthy exhibits. Vegetables were shown extensively and of superior quality; fruit, too, made a fine show. Plants showed the result of the weather, for many were not fully developed. Excellent prizes were offered for a group of Chrysanthemums, Ferns, and foliage plants. These groups were arranged down the centre of the hall, and the effect was good.

Mr. W. Thomson, gr. to J. WHITFIELD, Esq., Moseley, easily won 1st prize with suitable plants, not too crowded together; Mr. A. Cryer, gr. to J. A. KENRICK, Esq., Edgbaston, was 2nd.

For a similar group, but of less dimensions, Mr. Waldren, gr. to J. C. CADBURY, Esq., Northfield, Birmingham, beat his three rivals somewhat easily, with exceedingly fine Japanese blooms, properly placed; Mr. C. Kellard, gr. to A. H. GRIFFITHS, Esq., was 2nd.

Specimen Chrysanthemums were lacking in quality throughout. Mr. Sheppard, gr. to Mrs. T. SIMPSON, Edgbaston, won 1st prize for six Japanese distinct; Mr. WALDREN occupying a like position for three plants.

With Madame Ferlat in good condition, Mr. WALDREN won for one specimen large flowering variety, and also for one Japanese with Viviand Morel, freely flowered.

Cut blooms were shown fairly well. Two classes were provided for twelve varieties and six varieties of Japanese in vases, six blooms of each variety in a vase. In the former class three competed, Mr. E. J. Brooks, gr. to Col. BEECH, Coverley, winning quite easily with good blooms of Mrs. Mease, M. C. de Leché, Guy Hamilton, Mrs. Barkley, Le Grand Dragon, Lily Mountford, Mafeking Hero, and Lord Ludlow as the more prominent; Mr. J. Rich, gr. to J. H. HADFIELD, Esq., Ross, was 2nd.

For six varieties, Mr. T. Pritchard, gr. to F. E. MUNTZ, Esq., Umberslade, won, with full, solid blooms of leading varieties; Mr. Jennings, gr. to L. DE ROTHSCHILD, Esq., Ascot, was 2nd.

The blooms shown on the orthodox stands lacked quality. For eighteen Japanese, distinct, Mr. BROOKS was again successful; and Mr. RICH was 2nd.

Large Japanese blooms, arranged amongst foliage plants and Ferns, to illustrate their adaptability for decoration, made quite an imposing display in the allotted spaces of 3½ feet by 3 feet. Five competed. Mr. J. V. Macdonald, gr. to J. H. KENRICK, Esq., Edgbaston, won 1st prize, with heavy blooms.

No fewer than nineteen took part in the class devoted to the best-decorated dinner-table, 8 feet by 4 feet. Miss E. PITT, Acocks Green, received the 1st prize for a chaste arrangement of Chrysanthemum Source d'Or, Ampelopsis Veitchi, and sprays of Selaginella, all harmoniously arranged. Mr. G. BARRETT, Kidderminster, was 2nd.

Primulas, as usual, were superb. Messrs. THOMSON & Co., Sparkhill Nurseries, secured the leading awards in the principal open classes; Mr. A. CRYER doing likewise in those confined to amateurs.

Fruit was good. For the best collection of British-grown produce, Mr. G. Mullins, gr. to Lady HENRY SOMERSET, Eastnor Castle, Ledbury, was an easy winner of the 1st prize with good Grapes, and excellent Apples and Pears; Mr. H. WEEKS, Derby, was 2nd, with much smaller fruits.

Mr. MULLINS was also successful with Grapes, Apples, and Pears, in the various classes devoted to these fruits. Mr. Goodacre, gr. to the Earl of HARRINGTON, Elvaston Castle, Derby, won 1st prize for Muscat of Alexandria, showing them in excellent condition.

Messrs. PERKINS & SONS, Coventry, had a remarkable exhibit of wreaths, crosses, floral baskets, bouquets, &c. This was, perhaps, the centre of attraction, so splendidly was the exhibit arranged, and so fine the individual quality of the flowers.

SEVENOAKS CHRYSANTHEMUM SHOW.

NOVEMBER 11, 12.—The annual show of the Sevenoaks and West Kent Chrysanthemum Society, took place in the Club Hall, Sevenoaks, on the above date. This Society is affiliated with the National Chrysanthemum Society, and with it last year was incorporated the St. John's Chrysanthemum Society. That step was too recently taken (last November) for the executive to be able to judge of the results, but the combined exhibition last week has demonstrated once for all that the decision finally arrived at, was a wise one.

The committee, acting wisely in view of past experience, had altered the size of the staging, making the tables 2 feet wider than hitherto. This enabled them to give more effective display to flowers and fruit, and although it somewhat curtailed the space available for the public, the result was in the main an improvement. It was soon apparent that the ingenuity of the committee would be taxed to the utmost in finding room for all the produce sent in. Every class was represented, every section produced keen competition, and the groups maintained their reputation as one of the most attractive features.

A very noticeable innovation in this show is the class for Chrysanthemum blooms shown in vases. This was introduced last year but did not meet with much approval. This year Mrs. H. FOSTER kindly gave some special prizes, and it was gratifying to find that competitors recognised the artistic and economic value of the class and supported it loyally.

Another delightful feature was the hanging baskets. The specimen plants, again, were a prominent class, and among them were several exceptionally fine plants.

The season has been a most unfortunate one for the fruit grower, but evidently some in this neighbourhood have found a panacea for all the ills which fruit is heir to, and the specimens shown were as near perfection as mortal can hope to bring them. Apples were especially good, of fine colour, and well matured. Pears were also very fine, some of them being exceptionally well grown.

In the vegetable classes the competition was so keen that the committee erected a large tent at the North end of the Hall, and staged nearly the whole of them under canvas. There were no fewer than thirty-five entries in vegetables, and the Sevenoaks Autumn show has never been favoured with a more numerous, a better arranged, or a more praiseworthy lot.

Open, twenty-four blooms, Japanese, distinct.—1st, W. Tebay, gr. to COLIN F. CAMPBELL, Esq., Everlands, Sevenoaks; 2nd, G. Boaks, gr. to JAMES DIXON, Esq., Everlands.

Four vases of cut blooms, three in a vase, with four distinct varieties; special prizes given by Mrs. H. Foster.—1st, W. TEBAY; 2nd, G. Cowper, gr. to H. FOSTER, Esq., Hillside, Sevenoaks.

Four trained Chrysanthemum-plants, distinct, not disbudded.—1st, F. W. Huxley, gr. to Col. S. B. BEVINGTON, V.D., J.P., Merlewood, Sevenoaks; 2nd, T. H. Usher, gr. to Major ROGERS, D.S.O., Riverhill.

Twelve cut blooms, arranged with foliage or plants for effect, space 4 feet by 3 feet.—1st, H. Crawley, gr. to W. J. THOMPSON, Esq., J.P., Kippington Grange, Sevenoaks.

A group composed of forty Chrysanthemum-plants in pots, arranged for effect with Ferns and any kind of foliage, in a space 7 feet by 5 feet.—1st, W. TEBAY, Everlands; 2nd, G. BOAKS, Edenhurst; 3rd, T. H. USHER, Riverhill.

Twelve cut blooms, Japanese, distinct.—1st, A. J. Hawkes, gr. to Rev. A. STEWART SAVILLE; 2nd, W. TEBAY, Everlands.

Twelve cut blooms, Japanese, not fewer than eight varieties.—1st, R. Edwards, gr. to J. DIXON, Esq., Beechy Lees, Otford; 2nd, E. Greenway, gr. to G. FRANCE, Esq., Oak Lodge, Sevenoaks.

Twelve cut blooms, incurved, distinct.—1st, A. J. HAWKES, Tonbridge; 2nd, W. TEBAY, Everlands.

Twelve cut blooms, not fewer than eight varieties.—2nd, W. HAWKER, Squerryes Lodge.

Twelve cut blooms, Anemones, not fewer than six varieties.—1st, W. HAWKER, Squerryes Lodge; 2nd, T. H. USHER, Riverhill.

Hanging basket of arranged Chrysanthemum-flowers, with any kind of foliage.—1st, F. W. HUXLEY, Merlewood; 2nd, G. BOAKS, Edenhurst.

Centre-piece for table decoration, composed of Chrysanthemums with any kind of foliage (for under-gardeners).—1st, F. HAWKINS, Beechy Lees, Otford; 2nd, D. SHEWBRIDGE, Sevenoaks.

HULL CHRYSANTHEMUM.

NOVEMBER 11, 12.—The annual show was held in the Artillery Barracks. The entries showed a slight falling off in point of numbers, but there were enough to make the show a representative display of autumn produce.

Instead of the groups for Chrysanthemums and foliage plants, which have occupied the thoughts of exhibitors and the public for so many years in the past, an entirely new class was arranged for this season. Copying the conditions printed in the schedule, they run thus:—"Two pillar groups, each on a ground space 6 feet by 4 feet; a mirror panel group on a ground space of 9 square feet, and a hanging basket; Chrysanthemums, miscellaneous flowering and foliage plants (Orchids excepted), to be used in the decoration. The whole to be arranged for effect. The wood pillars to be 15 feet high." Four competed, and the display was unique. Opinions as to the advisability of the change were divided, but this was anticipated. Mr V. Waterhouse, gr. to W. T. OWBRIDGE, Esq., The Grange, Cottingham, was awarded 1st prize, for a bold arrangement of large-flowered Chrysanthemums, associated with richly coloured Crotons and other plants. Mr. G. Coates, gr. to S. L. HALDANE, Esq., 114, Coleman Street, Hull, was a very close 2nd, with a more artistic arrangement, but his group lacked the brilliancy of colour and boldness of character possessed by the premier exhibit.

The groups of miscellaneous plants were arranged down the centre of the hall in spaces of 100 square feet. Mr. J. FOSTER, Junr., "Smiddy's," Newland, secured the leading position with a satisfactory arrangement; Mr. T. M. Petch, gr. to Mrs. BENNINGTON, Mona House, Sutton, 2nd.

Chrysanthemums in pots were few in number; the best were seen in the class for "cut backs." For six specimens, Mr. T. THIRSK, Beverley, won with typical examples of Viviand Morel, which is so well adapted to this form of growth.

In the classes for cut blooms the 1st prize for three Japanese varieties, five blooms of each, staged in vases was won by Mr. VALLIS, Bromham Fruit Farm, Wilts; Mr. G. Walker, gr. to C. E. A. LYON, Esq., The Lair Hornsea, 2nd.

Incurved varieties, although not numerous, were good. For twenty-four blooms, Mr. J. Mudd, gr. to J. CUTTS, Esq., 8, Zulla Road, Canington, Nottingham, was 1st. In the class for eighteen, Mr. C. Jennings, gr. to F. W. JAMESON, Esq., Aston Hall, North Ferriby, won with excellent examples. Mr. R. Walker, gr. to Major STRACEY CLITHEROE, Hotham Hall, Brough, had the best twelve specimens.

What is known at Hull as the "Rundle" class, always creates interest. The class is to encourage these small yet neat flowers. Prizes are given for two bunches of three blooms each of Mrs. G. Rundle, G. Glenny, and Mrs. Dixon, staged with a few inches of stem and leaves, and a very pretty exhibit is the result. Mr. V. WATERHOUSE, won 1st prize for these.

For twenty-four Japanese blooms, Mr. VALLIS was once more 1st prize winner. Mr. T. MUDD, was 2nd. For eighteen blooms, Mr. G. Walker, gr. to C. E. A. LYON, Esq., The Lair, Hornsea, was 1st.

Special classes for table decoration under artificial light, were arranged for ladies, these making a pleasing display.

For the best decorated dessert table 8 feet by 4 feet, there was a stiff competition, Miss FANNY KIRK, Owstwick Hall, Hull, secured the 1st prize, which carries with it a sum of money as well as the Challenge Cup. She has now won the Cup three times, and it becomes her absolute property.

PUTNEY AND WANDSWORTH CHRYSANTHEMUM.

NOVEMBER 12, 13.—The twenty-fifth annual exhibition of this Society was held in the Town Hall, Wandsworth, on the above dates. The show was a good one, and had a very pretty effect in the Hall, which is a suitable one for the purpose. When we made a call upon the opening day, the enthusiasm amongst the cultivators was extremely high, proving that the more ambitious exhibitions at the Royal Aquarium and elsewhere do not represent anything like the measure of zeal that exists amongst metropolitan Chrysanthemum growers.

The usual groups of Chrysanthemums were a feature of this as at other shows, and Mr. R. Bradford, gr. to E. H. BROWN, Esq., Highwood, Roehampton, could hardly have got another plant into the space allotted: he had the 1st prize; and a group of less ambitious arrangement, but possessing finer plants and better flowers from Mr. A. Smith, gr. to the LADY SUPERIOR, The Convent House, Roehampton, had the 2nd prize. The best Japanese bloom in the show, Mrs. H. Weeks, was contained in this group.

Trained Chrysanthemum plants were shown best by Mr. C. Bentley, gr. to Col. W. J. BOSWORTH, Cedar Court, Roehampton; Mr. Jas. Prentice, gr. to J. D. CHARRINGTON, Esq., Gifford House, Roehampton; Mr. Jno. French, gr. to Mrs. BARCLAY, Wimbledon Park, and others. Mr. FRENCH had a plant of Ladysmith, a pink single variety, 7 ft. across and but 4 ft. high. The cut blooms were good, but the Japanese were best. Some of the principal prize winners were Mr. JNO. FRENCH, who had the best incurveds, the best twelve Japanese, the best six vases of singles, &c.; Mr. J. DARK, who had the best twenty-four Japanese; Mr. A. SMITH; Mr. D. ANDERSON, who had the best six vases of Pompons, &c.

There were many good exhibits of fruits and vegetables. The best Muscat of Alexandria were shown by A. SMITH, and the best Black Grapes by Mr. T. Smith, gr. to Mr. CECIL BOYLE; Mr. A. SMITH had capital cooking and dessert Apples, gaining 1st prizes for each. Vegetables were shown by Mr. W. Waite, gr. to F. M. BROWN, Esq., Southfields, and Mr. F. Baker, gr. to Dr. HOFFMAN, West Hill.

Mr. RICHARD BROWN had excellent plants of Begonia Gloire de Lorraine; Mr. G. Hutton, gr. to G. E. FRERE, Esq., Wimbledon, well grown Primulas; and Mr. R. BRADFORD good plants of Capsicums. There were many other competitive classes in all sections to which we cannot refer in detail.

Messrs JAS. VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, exhibited a most excellent group of ornamental foliage plants, also Cattleyas, Nepenthes, and Lily of the Valley, arranged beautifully.

Mr. ROBT. NEAL, nurseryman, Wandsworth, had a smaller group of miscellaneous plants, also very pretty; and Messrs. J. PEED & SONS, Roupell Park Nurseries, West Norwood, a few Apples and Pears.

The honorary secretary is Mr. J. F. McLeod; and the acting secretary, Mr. W. J. Reynolds.

WINCHESTER CHRYSANTHEMUM.

NOVEMBER 12, 13.—The annual show was held in the Guildhall, and was quite a success. Cut blooms were numerous and good; plants showed to advantage, being unusually well flowered, and furnished with vigorous foliage.

The leading class for cut blooms was that for forty-eight, distinct, half to be Japanese and half incurveds. Substantial prizes were offered, and there were four competitors. Mr. Neville, gr. to F. W. FLIGHT, Esq., Cornstiles, Twyford, Winchester, won the 1st prize with a stand of heavy, well-staged blooms; Mr. J. Hughes, gr. to Messrs. HART & SONS, Guildford, was 2nd.

In the class for twelve incurveds, distinct, these two exhibitors occupied similar positions.

Japanese were more numerous. For thirty-six specimens, Mr. G. Nobbs, gr. to His Majesty the KING, Osborne, Isle of Wight, staged an excellent set, and won the 1st prize; Mr. NEVILLE was 2nd.

In a class for twelve Japanese blooms, five competed. Mr. L. Dawes, gr. to Mrs. OGILVIE, Hambledon, won, staging excellent blooms of Mrs. Barkley, W. R. Church, E. Molyneux, Sir H. Kitchener, Lord Salisbury, Mrs. G. Mileham, and Mrs. Coombes. Mr. G. Best, gr. to F. LEYLAND, Esq., The Vine, Basingstoke, was 2nd.

Chrysanthemums in vases had two classes set apart for them, the principal one being for nine Japanese varieties, three blooms of each. Mr. J. Wasley, gr. to J. B. TAYLOR, Shenfield Manor, Basingstoke, had 1st prize; and Mr. Meredith, gr. to G. WILDER, Esq., Stanstead Park, Emsworth, was a close 2nd.

For six varieties, three blooms of each, Mr. Street, gr. to Dr. BENGE, The College, Winchester, won.

For a group of Chrysanthemum-plants, Mr. STREET won with ease, his plants being dwarf, well clothed with foliage, and carrying good blooms. Mr. T. Stone, gr. to the Ven. Archdeacon HAIGH, The Close, Winchester, was 2nd.

Encouragement is given here for the growth of plants of a dwarf character, with ample foliage and good blooms, suitable for conservatory decoration. For six varieties, distinct, Mr. G. Adams, gr. to Col. F. A. DICKENS, Edge Hill, Winchester, was easily 1st, with such varieties as Mrs. Mileham, Mrs. G. W. Palmer, Swanley Giant, T. Carrington, and Lady Hanham; 2nd, Mr. H. Gigg, gr. to the Rev. R. M. MOORSOM, Holyrood, Winchester.

Fruit and vegetables were good in quality, if not very numerous. Miss WADMORE, Basingstoke, won 1st prize for the best decorated dinner-table, and a basket of flowers.

Messrs. E. HILLIER & SONS, Winchester, staged, not for competition, a good collection of Apples and flowering plants.

Mr. G. Ellwood, gr. to W. H. MYERS, Esq., M.P., Swanmore House, Bishop's Waltham, arranged an interesting table of cut Chrysanthemums, Ferns, Crotons, Palms, &c.

BANBURY CHRYSANTHEMUM, WINTER FLOWER, AND FRUIT SOCIETY.

NOVEMBER 12, 13.—The year 1902 will be a noteworthy period in the annals of the Chrysanthemum Society, the president of which is Lord North, by reason of its honorary secretary being elected Mayor of the borough immediately prior to its annual exhibition. The exhibition was opened in the Town Hall, on Wednesday afternoon, by Mrs. Aubrey Cartwright, of Edgcote House, in the presence of a large assembly.

Of the show, nothing but praise can be expressed. There was a record entry, the number being 358, or sixty more than last year. The principal feature of the show was the open class for thirty-six Japanese blooms, for which the Banbury Challenge Cup is awarded, and the exhibits of the winner, Mr. F. J. MYERS, Charlton Lodge, were perfect in bloom and foliage. Mr. J. G. WILLIAMS, of Pendley Manor, Tring, was a good 2nd. Mr. W. C. CARTWRIGHT, Aynho Park, was 1st in a good competition for eighteen varieties of Japanese; Mr. A. R. MOTION, Upton House, running him closely for premier honours.

Mr. MOTION'S single Japanese bloom was a magnificent specimen, and in addition to securing 1st prize in its class, it received a Gold Medal for the best of its kind in the show. The other Gold Medal, for incurved Chrysanthemum, was taken by Mr. J. G. WILLIAMS, the same bloom receiving the 1st prize in its class. Taking the incurved varieties on the season, the blooms at this show were wonderfully good, and among the Anemones were also some exceedingly fine specimens.

The baskets of Chrysanthemum blooms arranged for effect were deserving of special mention, Miss GILLETT, West Bar, gaining 1st place in good competition; while Mr. F. TYRRELL, Bodicote, took the 1st for an Epergne, as well as other awards. Mr. F. J. MYERS, who has won the Banbury Cross Challenge Cup two years in succession with winter-flowering and foliage plants, was this year prevented from acquiring the trophy as his absolute property, by Mr. MOTION, whose light and graceful arrangement of plants, secured pride of place.

Fruit was shown extraordinarily well, especially Apples and Grapes.

Amateurs were well represented in all departments, some of the exhibits being equal to many shown by professionals.

KINGSTON-ON-THAMES CHRYSANTHEMUM SHOW.

NOVEMBER 12, 13.—Removed from the dark and dingy Drill Hall at Kingston, wherein twenty-five annual shows have been held, the exhibition of this year was held as above in the much more pleasing and warmer St. James' Hall, in delightful weather. To suit the more restricted area, the classes had been slightly reduced in number, and all non-competitive exhibits were excluded. The result was much the prettiest show yet held, full of brightness and colour, quality and variety excellent, with every inch of space occupied. The new Mayor of the Borough, Councillor Lyne, attended and opened the show on the afternoon of the first day.

Groups of Plants, &c.—There were four of Chrysanthemums, the best, having capital blooms, coming from Mr. J. Plowman, gr. to C. L. LAVERS SMITH, Esq., Ditton Hill; Mr. Watkins, gr. to R. W. MONRO, Esq., Kingston Hill, 2nd; Mr. J. Watson, gr. to Miss BEEKFORT, Ham, 3rd.

Of mixed groups, four again being arranged, the best—which included some fine Orchids, showed to great advantage—was from Mr. Buckell, gr. to MALCOLM S. COOKE, Esq., Kingston Hill; Mr. Woodward, gr. to Mrs. MCRAE, Kingston Hill, coming 2nd.

Plants.—Mr. Pead, gr. to R. S. BOND, Esq., Surbiton, had the best four bush Chrysanthemums, freely flowered; Mr. H. Mileham, gr. to A. T. MILLER, Esq., Leatherhead, had the best six out of six lots of Begonia Gloire de Lorraine, small but superbly grown plants; Mr. Blencorne, gr. to H. COMPTON, Esq., Kingston Hill, being 2nd. Mr. MILEHAM was again 1st out of several lots with six fine double Primulas, and also for six beautiful singles. Mr. BLENCORNE was 1st with five table plants in two classes, in spite of good competition. Mr. WOODWARD had the best six Bouvardias; and Mr. MILEHAM six capital Cyclamens.

Cut Flowers.—The largest of the open classes was for twenty-four Japanese. That fine grower Mr. G. Hunt, gr. to PANTIA RALLI, Esq., Ashtead Park, was 1st, with very fine blooms, all of the best known varieties. Mr. PEAD being 2nd, and Mr. Quarterman, gr. to SETH SMITH, Esq., Cobham, 3rd. With twelve blooms, Mr. MILEHAM was well 1st with capital flowers; Mr. Hicks, gr. to A. CUSHNEY, Esq., Cobham, being 2nd. Mr. W. Perry, gr. to LOUIS FLOERSHIEM, Esq., Bagshot, was 1st out of eight lots with superb "Carnots;" Messrs. MILEHAM and HUNT coming 2nd and 3rd.

In the incurved classes, the flowers shown being exceptionally fine, Mr. HUNT was again 1st, and Mr. MILEHAM 2nd.

With six of one variety, nearly all those shown being C. H. Curtis, Mr. PERRY was 1st with splendid blooms, that called forth the warmest praise from the judges: Mr. HUNT coming next with fine Mr. C. H. Egan, and Mr. PEAD 3rd with C. H. Curtis. Referring to the fine quality of the blooms now shown, it was remarked that those which won challenge vases in years past would now be regarded as but fourth-rate.

Many grand flowers were shown in vases, amateurs and cottagers vieing with gardeners in setting them up effectively. This method of showing in vases is growing in popularity every year. Some beautiful singles, shown by Mr. PEAD and Mr. WATSON, were greatly admired.

All local classes and those for amateurs, cottagers and ladies, were well filled.

FRUIT.

The finest Black Grapes, good Alicante, came from Mr. W. Tayler, gr. to C. BAYER, Esq., Forest Hill, S.E.; and Mr. Lock, gr. to Justice SWINFEN EADY, Weybridge, had the best Whites with capital specimens of Muscat of Alexandria. The latter had also the best four dishes of fruit in a capital Smooth Cayenne Pine, fine Muscat Grapes, Marie Louise Pears, and pretty Tangierine Oranges.

In Pears, Mr. HICKS was well 1st, having particularly fine fruits of Pitmaston Duchess, Doyenné du Comice, Beurré d'Anjou, and Beurré Bachelier.

Mr. LOCK had the best six dishes of Apples in Peasgood's Nonsuch, Lady Henniker, and Warner's King, cooking; and Ribstons, King's, and Blenheims, dessert.

BARNSLEY CHRYSANTHEMUM.

NOVEMBER 13, 14.—The sixteenth annual exhibition of the Barnsley Chrysanthemum Society was held in the largest hall of the town. The Society has long enjoyed a reputation as being one of the best in the North. Credit is mainly due to the energetic secretary, Mr. W. B. Armitage, and a strong committee, including several members of the local Paxton Society.

The principal prizes were taken by Mr. Alderman, gr. to J. D ELLIS, Esq., of Worksop, who, considering the unkind weather we have experienced in the North of late, had some very good specimens of incurved and Japanese blooms. The groups did not show up particularly well, though the taste displayed and a few of the plants in the winning area were not to be despised. Fruit was exceptionally good, particularly the hothouse contributions.

Financially, the show received better patronage than any of its predecessors have enjoyed.

Plants.—Group of Chrysanthemums, flowering and ornamental foliage plants, arranged for effect, occupying 64 feet, 1st, A. E. Wilson, gr. to Mrs. GUY SENIOR, Beevor Hall, Barnsley; 2nd, J. NALL, Aldergate House, Barnsley (gr., F. Buck).

Cut Flowers.—Eighteen incurveds, not fewer than twelve varieties, and more than two of any variety.—1st, A. Alderman, gr. to J. W. ELLIS, Esq., Sparken House, Worksop; 2nd, A. Brooks, gr. to the Countess of ROSSE, Womersley Park, Pontefract.

Eighteen Japanese, not fewer than twelve varieties, and not more than two of any one variety.—1st, A. ALDERMAN.

Twelve incurveds, not fewer than eight varieties, and not more than two of any one variety.—1st, A. BROOKS.

Six vases of Chrysanthemums, six varieties, three of one variety in each vase.—1st, A. GIBSON; 2nd, A. BROOKS.

Fruit.—Collection of dessert fruit, consisting of one bunch of Grapes of each colour, two varieties of Apples, six of each, two varieties of Pears, ditto.—1st, J. FINDLEY; 2nd, A. ALDERMAN.

One bunch each of black and white Grapes.—1st, J. FINDLEY; 2nd, A. ALDERMAN.

SCOTTISH HORTICULTURAL.

NOVEMBER 13, 14, 15.—The untoward season produced a marked effect in this fine show, the entries being only 812 this year, as compared with 958 in 1901, or a decrease of 18 per cent. It was apparent also that blooms generally were below the average in size and quality, and many of the plants, though well grown, were only in bud. The Association wisely encourage fruit, and in this section there was no falling off,

Grapes being particularly good in quality and satisfactory in point of numbers.

The chief class in those open to gardeners and amateurs is that in which the Victoria Memorial is offered for twenty vases of Chrysanthemums in twenty varieties, three blooms of each, the prizes being respectively Plate value £20, given by the Edinburgh civic authorities, and £10; £8, £15, £10, and £5. For these handsome prizes there were seven competitors, and the tussle for 1st place was betwixt Mr. R. Kenyon, gr. to A. F. HILLS, Esq., Monkhams, Woodford Green, Essex; and Mr. T. Lunt, gr. to Captain STIRLING, Keir House, Dunblane. The English blooms at first sight looked much the heavier, but they were generally less fresh than those from Keir, less well staged, and certainly might have been dressed a little more to advantage [!] The Scotch blooms, on the other hand, were beautifully staged, and every good point of the blooms emphasized, while many of these were of great depth and substance. The result was a victory to Mr. LUNT by the narrow margin of seven points. His varieties comprised in the *back row:* Lady Ridgway, Calvat '99, Mrs. E. Hummell, Princess B. de Brancova, white, of wonderful depth, the Silver Medal for best Japanese in this section being awarded to one of these; J. R. Upton, E. Shrimpton, and Loveliness, all extra fine; *second row:* C. Jarvis, Miss E. Fulton, Mrs. E. Mileham, M. Louis Rémy, Mrs. Barkley, and M. Gustave Henri; *front row:* Mrs. W. Preece, H. Weeks, Edith Tabor, Lady Crawshaw, Mrs. S. Foyett, Mr. H. Weeks, and Madame de Rosseau. Of Mr. KENYON'S exhibit, mention may be made of M. Chenon de Leché, Duchess of Sutherland, Mons. Louis Rémy, Bessie Godfrey, Lord Ludlow, and Australie, as particularly good; 3rd prize, Mr Nicoll, gr. to J. W. BELL, Esq., Rossie House, Forgandenny; 4th, Mr. Beisant, gr. to Mrs. ARMSTRONG, Castle Huntly, Longforgan.

In class 2 for the Scottish Challenge Cup and £10, offered for twelve vases of Japanese Chrysanthemums, in twelve varieties, three blooms of each, open to Scottish Gardeners and amateurs only. There were ten competitors, but the blooms were all distinctly inferior to those in the class just noted. 1st, Mr. Cummins, gr. to Lady STEWART, Grantully Castle, Aberfeldy; 2nd, Mr. McLean, gr to D. THOMSON, Esq. Greenfield House, Alloa; 3rd, Mr. NICHOLSON, Strathallan Castle, Machane.

For twelve Japanese Chrysanthemums, distinct, Mr. KENYON was 1st, with W. R. Church and Mrs. W. Mease in extra good condition; Mr. LUNT 2nd.

The best four vases of Japanese Chrysanthemums in four varieties, six blooms of each, were shown by Mr. NICOLL; and Mr. Norman, gr. to the Earl of MAR, Alloa House, was 2nd.

For four vases of Japanese Chrysanthemum blooms, six blooms in each, the prizes went in the order named to Messrs. LUNT, KIDD, MCLEAN, and NORMAN.

For four vases of Japanese Chrysanthemum blooms, in four varieties, three blooms in each, Mr. LUMLEY, Broomhall, Dunfermline; Mr. R. WHANNEL, Drumhouse, Greenend; and Mr. K. MACKENZIE, Cambus Cottage, Stirling, were 1st, 2nd, and 3rd respectively.

For two vases of twelve Chrysanthemum blooms, six blooms in each, Mr. BAIRD, Arnsbeg, Cambus, was 1st, and Mr. WHANNEL 2nd.

The incurved varieties were very few in number, Mr. MARTIN alone staging in the class for twelve blooms distinct.

For the best new Chrysanthemum not in commerce, Messrs. WELLS & Co., Earlswood, Surrey, were 1st with W. Duckham, a large incurved Japanese, silvery pink in hue, or as some one called it, "shrimp pink." Mr. GODFREY, Exmouth, securing 2nd for Pantia Ralli. The Medal for the best incurved bloom was won by Messrs. WELLS & Co.

GROUP OF CHRYSANTHEMUMS.

In the plant classes the chief prize was for a group of Chrysanthemums, foliage, and other flowering plants, arranged for effect on the floor, within a space of 20 feet by 10 feet.

Mr. WOOD, Canna Lane, with a bold mass, circular in form, secured the 1st prize; Mr. HUNT, Lansdowne House, Murray Field, being 2nd. The exhibitor last-named secured 1st prize in the chief Japanese plant class, but the plants, as already noted, were very late. Among other plants the six Dracænas from Mr. LUNT, eight decorative plants from Mr. ADAM KNIGHT, and the Begonias Gloire de Lorraine from Mr. YOUNG were good examples of cultivation.

FRUIT.

As already noted, fruit was specially good. For a collection, eight sorts, Mr. KIDD was 1st with good Grapes, Apples, and Pears; Mr. McIntyre, gr. to Sir C. TENNANT, Bart., The Glen, Innerleithen, 2nd, the Peaches, Monarch Plums, Apples, and Pears very good. Mr. MacKinlay, gr. to Earl COWPER, Wrest Hall, Bedfordshire, 3rd.

For four bunches of Grapes, Mr. LESLIE, Pitcullen, with fine Muscat of Alexandria and Gros Colman, was 1st; Mr. KIDD 2nd; and Mr. Wann, gr. to Lord BALFOUR OF BURLEIGH, 3rd. For two bunches Mr. KIRK was 1st with beautifully finished Gros Maroc and Muscat of Alexandria, as also for two perfect bunches of Muscat of Alexandria.

Other varieties were well shown.

Apples formed a capital display, the chief prizes going to Mr. MARTIN, Corndean Hall; Mr. MACKINLAY, Wrest Park; and Mr. MOIR, Rosehaugh, who also was most successful in the classes for Pears.

VEGETABLES

were particularly fine. The collections of ten and six sorts respectively, with which Mr. WALDIE, Dollar-beg-Dollar, secured the 1st prize for these, being extra good.

FLORAL DESIGNS.

Prizes of £20, £15, and £10 were offered for exhibits of floral designs, but only one competitor, Messrs. TODD & Co, Shandwick Place, entered. It, however, formed the marked feature of the show, for taste in arrangement and the harmonious blending of colours was worthy of all praise.

Of the miscellaneous exhibits only the chief can be mentioned, and that of Mr. W. J. GODFREY, of Exmouth, was certainly the most remarkable, consisting as it did of masses of the finest Chrysanthemums, to these being attached some zonal Pelargoniums and Carnations. The group as a whole was awarded the only Gold Medal. First-class Certificates were awarded to F.S. Vallis, clear yellow, with reflexed, drooping petals; and to Bessie Godfrey, fine yellow, with incurving petals; and to Pantia Ralli, a special award.

Mr. WELLS, Earlswood, Surrey, had a small but attractive lot of blooms, an Award being given to these two. First-class Certificates were awarded to Mrs. T. W. Pockett (soft yellow), and Mrs. A. MacKinlay (pure white).

The reporter can only hint at the sixty baskets of Potatos from Messrs. DOBBIE & Co.; the vegetables and new Potatos from Mr. SCARLET, Inveresk; Grapes and Tomatos from Messrs. THOMSON, Clovenfords; the Carnations from Leicester; the fine group of ornamental shrubs from Mr. DOWNIE, Beech-hill; and the exhibits of Messrs. LAIRD & Co., DICKSON & Co., DICKSON & SONS, and Messrs. I. HOUSE & SONS, Bristol.

The exhibition was opened by Earl of HADDINGTON, K.T., on the first day, a very large audience being in attendance, and the attendance on that day was one of the largest the Society has ever had. The judges and others dined as usual at the Royal British Hotel.

MEETING OF THE GHENT CHAMBRE SYNDICALE.

AT the last meeting of the Ghent Chambre Syndicale and Royal Agricultural and Botanical Society, the following awards were made:—

Certificates of Merit.—For Lælio-Cattleya H. Greenwood, Cattleya labiata alba (*par acclamation et avec félicitations du Jury*), C. præstans var.—all from M. DEVINCKE; for Cypripedium Elsmireanum, C. insigne Chantini × Charlesworthi, from M. STEPMAN; Cattleya Stepmani, C. Corbeillensis × C. Warscewiczii (*à l'unanimité*), from M. A. PEETERS, of Brussels; C. resplendens C. Schilleriana × C. Schofieldiana, C. Peetersii, C. labiata × C. Hardyana (*par acclamation et avec félicitations du Jury*), Lælio-Cattleya gracilis, C. Bowringiana × L. anceps, Cattleya Hardyana alba var. Mdlle. Adrienne de Wavrin, Lælio-Cattleya Herrode, C. O'Brieniana × L.-C. elegans Turneri (*par acclamation et avec félicitations du Jury*), Cattleya Niobe, C. Patrocini × C. aurea, C. aurea var. "Souvenir de la Reine Marie Henriette"—all of these Orchids from M. PEETERS; for C. hyb. C. labiata × C. aurea, from M. T. DE BIEVRE, head gardener of the Royal Garden at Laeken (*à l'unanimité*); Lælia præstans Vinckeana; Cattleya labiata Salmonea (*à l'unanimité*); C. labiata "Princess Clementine"; C. aurea "Souvenir de la Reine Marie Henriette"; Lælia præstans var. Ronseleana (*à l'unanimité*); Cattleya labiata Melusine (*à l'unanimité*); Lælia præstans Queen Alexandra (*par acclamation et avec félicitations du Jury*); Cattleya hyb. C. Harrisoni × C. Gaskelliana, C. labiata Miss Kate Brazier (*à l'unanimité*); C. aurea (*à l'unanimité*); C. labiata cœrulescens, Lælia præstans alba (*à l'unanimité*)—all these latter from M. le Marquis DE WAVRIN. For Cypripedium hyb. insigne Chantini var. Heyeanum, from Messrs. JANSSENS & PUTZEYS, of Merxem, Antwerp; Oncidium varicosum Rogersii, from M. E. PRAET. Cattleya bicolor, from Madame LOUIS DE HEMPTINNE, received Honourable Mention.

A Certificate of Merit was awarded for cut Chrysanthemums from M. E. FIERENS, *à l'unanimité et avec félicitations du Jury;* and Certificates for Novelty for Chrysanthemums Mlle. Marie Léger, Tour du Monde, and Chrysanthémiste Laforge, all from M. E. FIERENS.

Certificates for cultivation were bestowed for two species of Kentia from M. HARTMANN.

BRADFORD CHRYSANTHEMUM.

THE sixteenth annual exhibition was held in St. George's Hall, Bradford, and a large number of people paid visits to the exhibition. Some of the blooms sent from a distance were by common consent the finest specimens of Chrysanthemums which have ever been seen at the Bradford Chrysanthemum show.

The three exhibits arranged in competition for prizes offered for a group of miscellaneous plants constituted a charming feature of the exhibition. The 1st prize in this class deservedly fell to Mr. William Taylor, gr. to Mr. GEORGE C. WAUD, of Ferncliffe, Baildon for a group which contained some fine Orchids. Mr. WAUD'S Orchid-houses had also been drawn upon for an exhibit in the class for Orchids in bloom, which took the 1st prize in a strongly contested class.

Some splendid flowers were contained in the groups which were arranged in competition for the Cup given by the Mayor of Bradford. The prize was awarded to Dr. HENRY SMITH, of Frizinghall, whose blooms were of uniformly excellent quality.

The principal prize in the show, a sum of £10 and the Society's Challenge Cup, offered for a collection of twenty-four Japanese blooms, was won by Mr. A. Chandler, gr. to Mr. ARTHUR JAMES, of Rugby, who showed wonderfully fine blooms. The flowers were not only large in circumference, but of remarkable depth, and of brilliant colour. The 2nd prize went to Mr. E. ELLIS, of Heswall, Cheshire.

In the class for incurved blooms, the 1st prize went to Mr. Charles Ritchings, gr. to Miss BAIRD, of Malvern, for a collection which contained uniformly large, close, and finely-built blooms.

The local classes were less satisfactory, but shown as the blooms were in vases, instead of on the old-fashioned ugly boards, they made a good show. Lord Masham's Cup, which had been won twice by Mr. JOHN THORNTON of Drighlington, was wrested from that exhibitor by Messrs. CLARK & SON, of Rodley. Mr. MARK PEMBERTON, of Milner Field, who took the 1st prize for twelve Japanese blooms, showed some blooms of excellent quality; and Mr. T. Wood, gr. to E. R. FIRTH, of Saltaire, also included in the collections which secured two 1st prizes, some very fine blooms.

The National Society's Certificate of Merit was awarded to Mr. CHANDLER, winner of the Challenge Cup, for the premier bloom in the exhibition. The winning flower was Ethel Fitzroy, a Japanese variety. Certificates were also awarded to Mr. RUDOLF EICHEI, Orchid grower, Gilstead, for a fine display of Orchids and other choice flowering plants, not sent for competition; and Mr. H. DICKINSON, of Shardlow, Derbyshire, for a fine collection of hot-house Grapes.

In the bouquets and cut flowers, much artistic skill was displayed, the work of Mr. JOHN BROOKE, of Bradford, being deserving of special mention.

TRADE NOTICES.

WE are informed that part of the business of Wood & Ingram, Huntingdon, from October 13, 1902, has been purchased by Mr. John Edward Perkins, of Northampton. The business will be carried on at Huntingdon, St. Neots Nurseries, and St. Ives (Hunts.), under the name and style of "J. Wood, Ingram & Son."

THOMAS S. WARE (1902), LIMITED.—The above-named Company has been registered with a capital of £6,500 in £1 shares (5,000 "A," and 1,500 "B"). The objects of the Company are to take over the business of nurserymen, seedsmen, and florists, carried on by Thomas S. Ware, Ltd., at Hale Farm Nurseries, Hanworth, Middlesex, and at Bexley Heath, Kent, and formerly by J. H. Osborne, at Hale Farm Nurseries, Middlesex, and elsewhere, as Thomas S. Ware. No initial public issue. The first directors (to number not less than two or more than four) are W. L. Ainslie, G. Pike, and E. G. Waddilove (Chairman). Registered office: Ware's Nurseries, Hanworth, Middlesex.

ANSWERS TO CORRESPONDENTS.

ADDRESS WANTED. If "V. M.," whose queries were answered in *Gardeners' Chronicle*, Nov. 15, will kindly send his full name and place of residence, we will post to him a letter sent by W. Rose.

APPLES FOR A CLAYEY SOIL IN THE EASTERN COUNTIES: *Clay.* From the list of Apples sent we should eliminate Worcester Pearmain, King of the Pippins, Lord Suffield, Warner's King, and Cellini Pippin, substituting any of the following, which are reliable varieties for cold soils, viz., Ecklinville or Grenadier, both good early codlins; Lord Derby, Loddington Seedling, Winter Queening (Ducksbill), Easter Pippin (for very late work), Pott's Seedling, and new Northern Greening. Worcester Pearmain has nothing to recommend it but its colour and cropping qualities, and the colour on clay soil is not pronounced. Cellini Pippin is not only rather tender as a tree, but wasps are so fond of it that orchard-grown fruits stand very little chance. King of the Pippins, Warner's King, and Lord Suffield are not reliable on cold, heavy soils. Lane's Prince

Albert, one of the best of Apples, would want protection from cattle, as its heavily-laden branches will droop to the ground, even if standard worked. Cox's we have found to do really well on heavy soil, and this in spite of generally received opinion. Court Pendu Plat I can hardly recommend as a standard, it being more suited for low bush trees, but as it is a hardy grower and good cropper, there is no real reason for not planting it. "Clay" must be sure that his "heavy clay soil" is well drained before planting, and, unless the average rainfall of the district is very low, we should suggest elevating each tree on a distinct mound, so that the roots are kept well up to the surface. Each tree should have a properly prepared and well worked station, and the work of planting should be carried out in dry weather, so that the soil may be trampled upon without getting pasty. If possible, there should be some light soil worked among the roots in order to give them a start. Special care should be taken that nothing in the shape of tap-roots should be buried vertically in planting, as these would eventually induce gross and unfruitful wood. A good stiff soil, if well prepared and well planted, is likely to turn out more profitable in future years than a light soil, provided the drainage is efficient. *J. C. T.*

ASPARAGUS BEDS: *Dixie.* The proper season for preparing the beds is from the present time till the end of the month of January; and for planting the end of March, or as soon as growth begins.

BONES FOR MANURE: *E. J.* Put the bones into a slate, stone, or brick tank, or on a stone floor, and pour sulphuric acid over them, turning them over with a shovel; or, a slower process, put them in layers with hot stable-dung between, and let the whole ferment, exposed to the weather all the time.

BROOK'S FREEDOM TOMATO: *Northern Scot.* The raiser is W. Brooks, Whitecross Nurseries, Weston-super-Mare, who can supply seeds, &c.

BULB OR TUBER SENT WITHOUT A NAME: *Lady L.* Very probably an Aroid, but without seeing it we cannot say which species. It may be potted in a small pot and grown in the greenhouse, not affording it much moisture beyond a slight sprinkling of the surface of the soil till growth has fairly begun.

CUCUMBER PLANT FAILING TO FRUIT PROPERLY: *J. Cooke.* The result of some check to growth. There are no signs of eelworm or fungus.

CYMBIDIUM GRANDIFLORUM: *Inquirer.* The plant is often called C. Hookerianum, and the complaint about its flowers not expanding, as seen in your specimen, is a very common one. Probably the manner of cultivating it in an uniformly warm temperature will generally account for the failure, for when so grown, its spikes are produced at a time when lack of light and sunshine prevent their development of the large flowers. When growing, it should be given a fair amount of heat and much water; but when growth is completed, a shady greenhouse or vinery is best for it, for some months. That treatment retards the production of the flowers until the spring, at which season they invariably come to perfection. It is a native of the Eastern Himalayas, growing at altitudes of 5,000 to 7,000 feet.

FUNGUS ON DEAD LARCH: *A. C. F.* Agaricus (Pleurotus) mitis, Fr. Not uncommon on Larch bark, but probably local. *M. C. C.*

FUNGUS-INFECTED ROSE BORDER: *W. H.* Dig up the Roses forthwith, and lay them in another place; heavily dress the soil with lime, and trench it 2 spits, throwing out all mycelium (spawn), and let it lie fallow till March or April.

HORTICULTURAL EXAMINATION, &c.: *H. Smalley.* You would do well to apply to the Secretary of the Royal Horticultural Society, at the offices, 117, Victoria Street, Westminster. We do not furnish examples of test questions. In order to become a Fellow of the Royal Horticultural Society or of the Linnean, you must get yourself introduced by three or more Fellows, and if accepted pay your annual subscription, &c.

HELXINE SOLEIROLIA: *W. D.* This plant is a native of Corsica and Sardinia, and belongs to the Nat. Or. Urticaceæ. A creeping herbaceous plant, requiring protection in winter in this country. It would doubtless succeed on rockwork, or as a basket plant in a greenhouse all the year round.

MANURES FOR GARDEN SOIL: *E. Jones.* The superphosphate and the slaked lime may be worked into the soil in March, and the nitrate of soda applied, just before growth commences in the plants, and once or twice during the continuance of growth, but not later than August.

MARGUERITES TO BLOOM IN MAY NEXT: *Jeannot, Nottingham.* Keep the pots in a cold pit from which the frost can be kept out until it is seen that they are quite established, say the end of January or early in February; then with the lengthening days a more generous treatment may be applied, but at no time should they be forced, as that would lead to spindling of the shoots, and the formation of abortive flowers. As the season advances afford them intermediate-house treatment, with ample ventilation for a few hours daily, depending chiefly on sunheat, and only applying fire heat in cold weather to avert a check to growth. The plants should receive one shift before April is out.

NAMES OF FRUITS, ETC.: *We are desirous to oblige our correspondents as far as we can, but the task is becoming too great, too costly, and too time-consuming for us to continue it without restrictions. Correspondents should observe the rule that* **not more than six varieties** *be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. The fruits should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.*—*J. Jones.* A very poor, bruised, over-ripe specimen—probably Marie Louise.—*Sanders.* 1, Beurré Hardy; 2, Beurré Diel; 3, Beurré Bosc.—*J. A. Smith.* 1, Bramley's Seedling; 2, Alfriston; 3, rotten; 4, too small for recognition; 5, Golden Noble; 6, Pine Golden Pippin; 7, Cockle Pippin; 8, Hubbard's Pearmain.—*C. W. Strickland.* Pear General Todtleben.—*X. Y. Z.* 1, Warner's Seedling; 2, Waltham Abbey; 3, Castle Major; 4, Lord Burghley; 5, Chaumontel; 6, Easter Beurré; 7, Yellow Ingestre.—*C. A. Robinson.* 1, Lord Derby; 2, Braddick's Nonpareil; 3, Irish Pitcher; 4, Rosemary Russet; 5, Scarlet Nonpareil.—*W. B. J. Caledon.* 1, Pitmaston Golden Wreath; 2, fruit decayed; 3, Loddington; 4, Lady Derby; 5, Mannington Pearmain; 6, Claygate Pearmain.—*C. C. Bramham.* 1, Ribston Pippin; 2, Striped Beefing; 3, Cox's Orange.—*A. B.* 1, Grenadier; 2, Ecklinville; 3, Boston Russet; 4, Beurré Diel.—*G. B.* 1, Adams' Pearmain; 2, Crimson Quoining; 3, White Nonpareil; 4, Blenheim Orange.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*C. J. Andrews.* A seedling variety of Asparagus plumosus.—*J. H.* Catasetum Rodigasianum.—*H. B.* Not Nerine Fothergilli major. The flowers you send are of the Nerine flexuosa class, but it is more likely to be a garden-raised hybrid of it.—*Akroyd.* 1, Odontoglossum × Andersonianum. There is no botanical difference between it and O. Ruckerianum, which is a form of it with only a colour difference; 2, Odontoglossum Lindleyanum. This species appears in importations of other showier species of Odontoglossum, and is regarded by cultivators as the weed among them, though some of the forms are very pretty—that which you send, for example.—*J. O.* Dracæna marginata.—*A. F.* Cypripedium insigne albo-marginatum, or a form so near to it that it might well go under that name.—*F. M. D.* 1, Prunus laurocerasus (Laurel Cherry); 2, Cupressus Lawsoniana aurea; 3, Spiræa? send when in flower; 4, Cupressus Lawsoniana.—*W. B.* 1, Juniperus sinensis; 2, Retinospora plumosa of gardens, a form of C. pisifera; 3, doubtful, see next week's issue; 4, Cupressus, see next week; 5, Thuya gigantea, the T. Lobbi of gardens; 6?, no number written, Cupressus Lawsoniana.—*S. D.* Cratægus coccinea.

ORCHID IMPORTERS: *F. J. B.* The names of importing firms may be found in our advertising columns. Business arrangements as between buyer and seller, are matters which can only be settled by the respective parties, with which we cannot concern ourselves.

PEACH-HOUSE WITH CROSS TRELLISES FOR THE TREES, AND HIGH FRONT WALLS: *J. McCallum.* There is no difficulty in ripening the fruits of Peaches and Nectarines on trees fixed to trellises running at a right angle to the longitudinal line of the house, and these may be constructed at from 4 to 5 feet apart, perpendicular, and nearly as high as the rafters. See "Notes from Buxted Park" in the present issue, see p. 373. The brickwork in the front of a Peach-house need not be higher than 15 inches above the ground level.

PEARS: *A. B.* There is no evidence of disease in the fruits, but they are unusually "gritty," and the crippled or uneven development seen in the skin, indicate that the conditions under which the trees are growing, are not of the best. There has been a check from some cause. Is there any evidence of fungoid disease on the leaves?

PLUM-TREES RUN WILD: *F. E. T.* If you cut back the main branches almost to the points of origin, or even to half their length, other shoots will grow, from which suitably placed shoots will grow which may be laid in next year, and these in turn will produce fruiting shoots and spurs. When cut back it would be prudent to lift the trees, and curtail the roots, and thus establish an equilibrium between top and bottom growth. Plum-trees in which the spurs have grown outwards from the face of the wall may have half of the spurs removed down to the points of origin, and the other half reduced to half their length this season, and kept at that stage till the new spurs come into bearing; or the entire growth of spurs may be removed. Next season the branches would bristle with shoots, from which a sufficient number should be selected for forming new spurs, stopping them in July at 6 inches, and rubbing off all that are not wanted.

SOOT FROM FURNACES AT WATERWORKS: *C. B.* The sample of soot appears to be that deposited by coke, cinders, or town refuse, and not like that left by the combustion of coal; and if that is the case it will be deficient in ammonia, and almost useless as an aid to growth, excepting as tending to render the clay-soil porous.

THE ROOTS OF LARGE TREES: *J. P.* There is no better method of extracting the roots of trees that have been felled than that of digging them out of the soil. Standing trees by excavating much of the soil, and severing the chief roots, can be pulled over.

THE HABITAT OF PLANTS: *H. M. B.* If you will furnish us with the list of plants with numbers attached, we will endeavour to oblige you, although you ask us thirty questions for which we have not the space nor the time to give the replies in full.

VINES: *S. P.* There is no sign of "Black spot," or any other fungus disease on the cuttings. Probably the roots require attention.

COMMUNICATIONS RECEIVED.—R. R.—W. E. Groves—E. R., Ghent—S W. F.—Sydney Russell—Professor Fisher—Dr. Kränzlin, Berlin—H. W. P.—F J. F.—S. Castle—J. H. E.—M. Buysmann—Dr. Gilg, Berlin—The Clerk to the Fruiterers' Company—J Wood Ingram—M Van den Bossche—Dr. Morris—R. A. R.—W. R.—J. W. S.—W C. C.—W J.—R. T—W T.—Ted (specimen over ripe)—Grey.—A. W.—J D—Hull.—H. M.—E. Webb & Son—W. J. G—R. S.—J. T.—O. L.—J. F. H.—E. H J.—W K.—R P. B.—J. J.—Galloway.—T. D., Blandford—W S.—L. F., Angers—O. T. Peter B., Ladysmith.—E. W C.—E S.—E. S. J. T.—A. E. B.—J. P.—H. G.—W. C.—H. H.

DIED, on the 3rd inst., at his villa in Kötschenbroda, near Dresden, ERNST SCHMIDT, formerly proprietor of the firm of HAAGE & SCHMIDT, Erfurt, Saxony.

(For Markets and Weather, see p. viii.)

THE
Gardeners' Chronicle

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THE MAKING OF A SCOTCH ESTATE.

DURING the "Persecuting Times" in Scotland, no two families could well have been more unfortunate than those respectively of Sir Patrick Hume of Polworth, and Mr. Robert Baillie of Jerviswoode. The estates of both were forfeited, as was also the life of the latter, the former escaping a like fate mainly through the devoted care of his wife, and particularly through the unremitting watchfulness and filial attention of his daughter Grisel, of Scottish heroines the best beloved. Her nightly visits to her father in his gruesome hiding-place, where she whiled away the long nights, relating any incidents worth recording that had occurred during the day, such, for instance, as the strong protest of her brother Sandie against the appropriation of the sheep's-head, which she had removed unobserved from the table for her father's supper, are well known. Moreover, in the exile into which they were forced, she proved the mainstay of the family; and there not unnaturally a mutual attachment sprang up between her and George Baillie, son of her father's martyr-friend. It is needless to dilate on their return at the Revolution, nor how their troubles overpast, the erstwhile lovers in exile became man and wife in 1692. Lady Grisel Baillie, from the date of her marriage till her last illness in 1746, recorded in several books the incomings and outgoings of the family. Hence it occurs, that by the aid of these and old plans it is possible to gain a clear idea of the growth of their estate of Mellerstain, and at the same time sets of garden accounts afford glimpses replete with interest of gardening affairs in the South of Scotland at the commencement of the eighteenth century onwards.

The scope of the several plans does not extend beyond what was termed the Lordship of Mellerstain, which comprised about 5,000 acres. The earliest, about 1710, drawn after improvements had commenced, shows an environment chiefly of "moores and mosses," with large patches of "outfield," extending in at least one instance to about 500 acres. This was unenclosed ground, almost in a state of Nature; smaller portions, rudely enclosed and cultivated, were called "infield."

The house at this period stood in an enclosure in which the garden was included, extending to only 11 acres; and a few small fields, probably "braw calf-wards," in its vicinity were sheltered by belts of trees; otherwise it was a little oasis in a desert country. The plan bears witness to an ambitious and well-considered design, remarkable not only for its coherency as a whole, but also for the boldness; the natural lie of the ground was throughout taken advantage of, taking in altogether an extent of over 300 acres. The house was dominated on the north by an elevated piece of ground, 150 acres of which had already been planted in a style common at the period, but earlier than that adopted by Switzer, who it is believed laid out some Scottish grounds. Avenues crossed each other in all directions. These originated mainly in open centres, the chief avenue in this instance passing downward to the house, beyond which a somewhat rapid depression to the south terminated in a stream, the course of which here changed abruptly from west to south. At this point the acute sloping banks on each side were indicated for planting.

Another plan, of date 1759, exhibits the completed scheme. A new house, somewhat nearer the stream, had been erected, with a new garden and Melon-ground close to its west side, while another formal garden appears to the north-east. From the high-planted ground already mentioned a wide avenue extended downwards, and terminated at the house in a large circular plat of grass, having an encircling band of gravel, which, with part of the avenue, appears to have been utilised as a grand approach for carriages. All the ground formerly lawn was planted thickly with trees, but after no apparent design, and necessary walks were mostly straight-lined. South of the dwelling, a termination was provided by a large piece of water provided by the stream just mentioned, which had been dammed, and treated on lines severely formal. This was termed a canal, and the sloping ground by which it was flanked on each side was planted in the same manner as the wood to the north. A long diagonal avenue on each side formed, as is apparent to-day, charming *coups d'œil* from the house. The scheme was completed by a very broad band of trees, planted in circles and avenues, which united the garden with the plantations just described, woods, gardens, lawns, and water, being of the most formal type. Lady Hervey, immortalised by Gay thirty years previously as the "gay Lepel," wrote in 1756 of the marvellous improvements effected in less than fifty years.

Before the century closed, the present house, a creation of Adams', had been erected; and another plan shows the gardens swept away, and many of the trees in the vicinity of the house removed. Winding paths abound in the pleasure-grounds, and the formal lines, to a great extent destroyed in the wooded parts by breaking up their outer edges, and forming here and there open groups. The canal meanwhile had been displaced by a lake lying in a depressed hollow with a semi-circular mass of trees rising from its edges.

Turning now to what for a better expression may be called the Household Books, there is space for a glimpse merely of what was passing so long ago at this out-of-the-way country residence. It must be premised that both Lady Grisel and her husband had ample opportunities of seeing the best gardening of the time, and books in the library attest to the literature of the subject having been consulted. Scots gardeners too, notwithstanding the ill-natured remarks of Loudon, were a superior class, and though their work seems to have proceeded in leisurely fashion, whether in gardening, forestry, or ground work, they were undoubtedly a capable and efficient body of men. Perhaps the most remarkable feature about gardening two centuries ago, was the remuneration accorded the gardener. Labourers, when they worked, were paid 5*d*. a day, but the head-gardener was a yearly servant. Of one engaged for Mellerstain in 1708, the wage converted into sterling money, was paid £4 11*s*. 1½*d*. annually, of which the odd shillings and pence was for rent of "a house to his wife." This gardener accomplished not a little work during the time he occupied that position. Unfortunately he fell into a mistake in 1712, as appears from the following entry:—"For young trees bought by John Hope which was a perfit cheat, £2 10*s*." Whether the trees or John, or the amount charged, was a "perfit cheat" is not quite clear; in any case the result appears later in the same year, when this entry occurs:—"John Hume came to be garner, at Whitsunday, 1712, his wage in the year is £5 without a house, and if he have a house only £4." Shortly afterwards, however, another entry tells of an increase of income formed by the undernoted items, namely, "6 bolls Oats, 2 bolls Bear, Lithgow measure, a cow's meat, and a same sheap's grass in the Mains." The Linlithgow boll, it may be explained, was the standard Scots measure for grain; for Oats and Barley ("Bear"), all but equalling six Winchester bushels. The value of the grain at this time fluctuated between £2 6*s*. 8*d*. and £2 13*s*. 4*d*. annually. No value was placed on the cow's "meat," but the house rent was equal to 15*s*. a year. As a whole the wage was subject to fluctuation, the lowest noted being £7, and the highest £7 19*s*.

Later, entries of oatmeal and butter occur for garden men, and it is not improbable these may have been examples of an oatmeal-wage, the old Scots standard of the

working-man's wage having been one peck oatmeal per diem. The measure, it may be said, was about double the capacity of the modern English peck; and strange as it may appear, when a money wage was becoming common towards the end of the century, those who had studied the question were of opinion the rural labourer, till then unaffected by the rise and fall of prices, would find himself on the same level as the artisan in towns, and equally badly off!

Hume, however, was by no means ill-paid. At the same date the butler in the same family received £3 a-year, supplemented by a pair of breeches! coachman, £4; cook, £3; and the governess, a lawyer's daughter, £9, and afterwards £10. Sixty years later we find the annual wage of gardeners ranging from £10 to £40; and in Sinclair's *General Report* Neil indicates as the wage of gardeners in better class places, who were also foresters, and sometimes bailiffs as well, £60 a-year, with cow-keep and oatmeal.

In the Garden Accounts, it is a little unfortunate that garden seeds are not detailed. They amounted annually to about 33*s.*, but of the few entered separately we discover that Peas were 6*d.* and 1*s.* 3*d.* per lb.; 4 oz. "Spinage" seeds, 11*d.*; and Parsley, 1*s.* 4*d.* Among other items that may be mentioned are "a lb. Firr sead, 12*s.*; a lb. Lime seed, 5*s.* 6*d.*; 34 Ewe trees, £5; 2,800 Thorns, 10*s.* the 1,000; 40 Plains, 1*d.* per pice; 1,000 Elms, 15*s.*; and 200 Firrs, 12*s.* per 100." Garden plants appear as such, or flowers · but we find also "3 doz. Ranunculus, 1 doz. Jonquils, 4 do. Anemonys, and 2 doz. Tulips," which collectively were £1 5*s.* The towns in the district whence these were derived are sometimes mentioned, but the London nurseries, too, might have been requisitioned. The earliest catalogue, however, is that of Gray of Fulham (1740), which is marked in several places for plants. If not customary, it was at least not uncommon to procure plants and other forms of garden produce from neighbouring gardens. Thus we have at a date coeval with the commencement of these improvements, the Duchess of Buccleuch purchasing a peck of Peas, a dish of French Beans, or some early fruit from more favoured gardens in the vicinity of Dalkeith. In this case the same system was pursued, but the goods were of a different nature, and as appears, at the same time sufficiently curious:—

"For a roling yron from Kimmerghame	£1 2*s.* 6*d.*
Sr. Pat. Scot's Garner for geting the Ellers...	2*s.* 6*d.*
For a spade from my father ...	4*s.* 0*d.*
For Elm seed from Hundalee ...	2*s.* 6*d.*

Many entries refer to tools. Thus a spade bought in Edinburgh cost 4*s.*, while in Berwick, the same implement cost only 3*s.* 6*d.* "Shuffels" were 1*s.*, 1*s.* 2*d.*, up to 1*s.* 6*d.* each; watering "Canns," 4*s.* 4*d.* each; "a syth 2*s.*;" "another syth and two sharping stons, 3*s.*;" and glass for frames cost 4¾*d.* per foot.

I have already referred to the leisurely manner work was executed. For example, a new bowling-green with its banks occupied from commencement to finish almost three years, and cost exactly £11 19*s.* 1½*d.*, a very remarkable difference from the £300 and £400 required at the present day. However concurrently stone fences were being erected, tree nurseries formed, trees raised and planted, and the general work of the garden attended to.

In the matter of planting, it is plain from the earliest plan and data contained in these books that the lead of the sixth Earl of Haddington was very closely followed It is noted for instance, that The Mains was enclosed in 1711, but in the plan this is not shown; while a wood of 150 acres is marked as already planted, so that this must have occurred between 1708 and the above date, while Lord Haddington's earliest plantation of any extent was made in 1707.

It need hardly be said that the mutations of time have almost obliterated the original appearance of these important improvements. *R. P. Brotherston.*

SLUGS AND SNAILS.

(*Concluded from p.* 350.)

II.—MECHANICAL PROTECTION.

1. *Bristle-hairs.*—These are widely-spread, protective characters, and are sometimes adopted by an entire Order of plants, like the Boraginaceæ. If a snail is placed upon a plant, say, of Symphytum officinale, its motions at once betray the extreme unpleasantness of its situation, for it cannot even find a convenient foothold. Water-plants are, for the most part, devoid of bristles, yet we find them in Salvinia natans, as also in certain green fresh-water Algæ—Coleochæte, Bulbochæte, and Œdogonium.

Some very interesting experiments of Stahl's showed that, on the whole, smooth plants were safer from the attacks of snails than bristly ones; for the chemical substances contained within the organs appeared to be far more offensive than the bristles borne outside them. Plants of Cirsium, Hieracium pilosella, Myosotis, Jasione, Chærophyllum, received much more injury than did specimens of Veronica, Crepis, Rumex, Valeriana, Trientalis, from the slug Arion empiricorum. The common Nettle, Urtica dioica, is an interesting case, for it possesses two kinds of hairs, the long, stinging hairs, placed widely apart, and which are efficacious in warding off the attacks of browsing animals; and the shorter, more thickly-set, downward-pointing hairs, which protect the tissues from snails. Great stress is laid by Stahl on the importance of file-like hairs, as also of rough surfaces generally, in the protective economy of the plant. As showing that the roughness on the stem-surface of Equisetum, the common Horse-tail, is the sole cause of the immunity of these plants from the attacks of snails, he offered the latter bits of halved stems, when he found that they were entirely consumed, with the exception of the outermost silicified surface.

2. *The Uses of Calcification of the Cell-membranes.*—The file-like hairs of many Cruciferæ are impregnated with carbonate of lime. This is probably a protective adaptation. "Extracted" leaves of Erysimum cheiranthoides were not gnawed to any greater extent than the fresh ones, the latter being characterised by their bitter taste. Only after treatment of the leaves with acetic acid did they become amenable to being eaten by the snails. The seaweeds Scinaia, Halimeda, Acetabularia, Corallineæ, &c., also probably owe their remarkable incrustation of calcium carbonate to this same need for armour-proof against animal attack. This was proved, by a similar experiment to the above, in the case of the fresh-water Alga Chara fragilis.

3. *The Uses of Silicification of Cell-membranes.*—It is well known that very many grasses and Cyperaceæ possess a large amount of silica stored up in the walls of their epidermal cells, which gives them, in varying degree, a rigid, stiff habit, in both stems and leaves. In some parts of the world, as in the tropics and Japan, this armour-plate is sufficiently strongly developed to resist the attacks of ruminants and rodents. In our country only two or three, such as the grasses Phragmites and Nardus stricta are able to do this. The greater number seem to be adapted merely to elude the onslaughts of lesser creatures, such as snails and slugs. Leafy and leafless stalks of Zea Mais, Phragmites arundinacea, Holcus mollis, Dactylis glomerata, Poa annua, Glyceria spectabilis, Triticum compositum, were offered to numerous specimens of Helix hortensis and H. pomatia. The smaller garden snail left everything, even Poa annua, untouched, except the Maize; the mesophyll between the veins of the leaves of this latter plant, starting from the upper surface had been gradually eaten, the more resistant upper membrane of the lower surface had been left almost uninjured. The larger snail had injured the leaves of some of the other grasses, but, in proportion to the amount of food this creature usually is capable of devouring, the damage done was very inconsiderable, and much retarded owing to the hardness of the tissue. Limax agrestis, on account of its sharper teeth, is able to do more harm to grasses than the other snails. On the other hand, when the young, growing, unsilicified part of grasses, Sedges or Horse-tails, were placed before the snails, they were rapidly and greedily swallowed. Stahl made water cultures of two plants of Maize; one of these he provided with all the necessary salts, including silica, the other received everything except the silica. A striking difference in the plants so grown was noticeable, in the former, the leaves possessed the usual roughness; in the latter, they were quite smooth. These being offered to Helix hortensis, this snail was hardly able to touch the plants grown in the water provided with silica, whereas the smooth organs of the other plant were in a short time full of large holes. To Limax agrestis, a piece of leaf with, and a piece four times as large, without silica, was given; the next day the latter was completely demolished, with the exception of the vascular bundles, while after three days' time, the former was barely injured. These experiments, says Stahl, prove that silicification is a *conditio sine quâ non* for the existence of the grasses.

4. *Mucilage as a means of protection against snails.*—Stahl observed that certain extracted leaves, in spite of their being unprovided with either hairs, or hardness of surface, yet were entirely avoided by snails. This fact he eventually found to be due to the presence of mucilage contained in certain canals or sacs in the leaf-tissue. The snails showed no preference either way when offered both fresh and extracted leaves of Tilia ulmifolia, Valerianella olitoria, Althæa officinalis, which all contain much mucilage; nor would they touch the mucilage-containing

roots of Symphytum officinale. Especially rich in mucilage are certain Cacti, whose thorns are too sparsely scattered to afford any protection from snails. Hungry snails were provided with a fresh and an extracted piece (from which the spines had been removed) of Cereus phyllantoides; very little was eaten, and that, extremely slowly, from either piece; the same happened with other species of Cereus and with Opuntia vulgaris. As a control experiment, the snails were offered certain Cacti which contain no mucilage, but possess a very nauseous taste, such as Echinocereus Williamsii, Mammillaria prolifera, fresh pieces remained untouched, while extracted pieces were greedily devoured.

5. *Gelatinous Structures.*—Closely allied to mucilage is the gelatinous substance which encloses the organs or even the entire individual in certain plants, as in many Algæ, Desmidiaceæ, Nitella syncarpa, Chætophora elegans, Batrachospermum, Rivularia Bramiana, Nostoc, and very many seaweeds, also the Lichen, Collema granosa, and the winter buds of Utricularia. That this substance is efficacious in enabling the plants possessing it to exist in the neighbourhood of water-snails and fishes, is evident from the experiment in which the snail Lymnæus stagnalis was observed to be unable after repeated efforts to gnaw the stems of Nitella syncarpa, which had been introduced with it into a beaker-glass. This gelatinous substance differs from mucilage in the fact of its not swelling up in water.

6. *Raphides.*—Amongst the most interesting and remarkable methods adopted by plants for defending their lives against those most dangerous and voracious enemies of theirs, the slugs and snails, must be reckoned that of storing in their tissues (chiefly the more superficial ones) bundles of needle-shaped crystals of oxalate of lime, contained in certain specialised cells or sacs. Neither soaking in alcohol nor boiling will remove these crystals. The burning acrid taste experienced when leaves of Arum maculatum are chewed is due to these minute crystals, thousands of them penetrating the tender tissues of the gums and causing local inflammation. That the sensation is not due to a substance dissolved in the cell-sap is shown by the purely local seat thereof, by its not spreading throughout the mouth. These raphides are possessed by a considerable number of plants, chiefly, but not exclusively, Monocotyledons, such as Aroids, Orchids, Narcissus poeticus, Dracæna, Hyacinthus. The Dicotyledons which possess them belong chiefly to the orders Onagraceæ, Rubiaceæ, Ampelideæ, Balsamineæ. To exhibit the action of the raphides, the following experiment was undertaken:—Leaf fragments of Arum maculatum were boiled in alcohol; some of these were then treated with acetic, others with hydrochloric acid. The acids having been removed by boiling in alcohol, and the pieces after drying being made to swell again in water, were offered to some snails; each received three pieces, which had been respectively treated with alcohol, acetic, and hydrochloric acids. Those treated with acetic acid still contained raphides, while these had completely vanished from those which had been treated with hydrochloric acid. The snails (Arion hortensis and Limax agrestis) devoured the latter completely, only gradually those treated with acetic acid, while the pieces treated with alcohol were hardly touched.

The leaves, stems, and roots of Œnothera biennis are crammed with these crystals, and the rosettes of this plant, as well as the stems and leaves of Epilobium species and Circæa lutetiana, are hardly touched by sheep, cows, and rabbits. Stahl noticed that the snails, Helix pomatia, H. hortensis, Limax agrestis, avoided the leaves and roots of Œnothera, Epilobium hirsutum, and Fuchsia globosa; but it must be remembered that these plants also contain a considerable amount of tannin, and sometimes, as in Circæa, an acid secretion in their hairs; so their protective adaptation must not be ascribed wholly to the presence of the crystals. The Grape-vine contains raphides in the young shoots, tendrils, inflorescence, and leaves.

7. *Isolated Sharp-pointed Crystals of Oxalate of Lime.*—These occur in the vegetative organs of some species of Iris in great number. Fresh transverse sections of the rhizome of Iris germanica were only slightly gnawed by Arion empiricorum, A. hortensis, Limax agrestis, Helix hortensis, and then almost exclusively the central portion, which is less rich in the crystals than the periphery. Of extracted pieces only the central portion was eaten. But after treatment of the sections with hydrochloric acid, this preference for one portion of the section rather than another ceased; all parts, with the sole exception of the corky layer, were alike devoured.

It is a fact to be noted that many plants possess more than one method of protection, such are:—Salvinia natans, with both pointed hairs and tannin; Peperomia, with ethereal oil and raphides; Rumex acetosa, with oxalic acid and tannin; Cruciferæ, with file-like hairs against snails, and strong-tasting substances against higher animals; and several others.

Special methods of protection are often characteristic of special families of plants, such as silicification in the Grasses, Cyperaceæ, Equisetaceæ; file-like hairs in the Boraginaceæ; raphides in the Amaryllidaceæ, Asparagineæ, Orchidaceæ, Onagraceæ; bitter principles in the Gentianaceæ; tannin in the Ferns, Rosaceæ, Geraniaceæ, Leguminosæ, Ericaceæ; ethereal oil in the Labiatæ; alkaloids in the Solanaceæ. On the other hand, some Orders exhibit very considerable variety in this respect, as in the large groups Compositæ, Aroideæ Liliaceæ.

Much more could be written on this deeply fascinating, and, I may add, important subject; but enough has been detailed to show what a wonderful relationship really exists, in very many more ways than one, between almost every common plant and weed, and some one or more members of the animal kingdom. And further, that every minute structure and tissue has its wealth of meaning and economical value, if we will, as Prof. Stahl of Germany has done, in the cases before us, but take the trouble to discover it. *W. C. Worsdell.*

MANURIAL EXPERIMENT WITH PEAS.

Our illustration (fig. 131), taken from a photograph, and particulars of an experiment, shows in a graphic manner the effect of a dressing of superphosphate and sulphate of potash upon culinary Peas. In the spring of 1902, I staked out a piece of land, clayey loam, measuring a couple of perches, which I divided into two equal parts, one of which received a dressing of 3 lbs. of superphosphate of lime and 3 lbs. of sulphate of potash, upon the top of the winter weeds; the other plot had no dressing of any kind. Both plots were then dug, and about three weeks afterwards, each was planted with three rows of Daniel's Best-of-All Peas. During the early stages, there was no perceptible difference between the rates of growth; but when each had attained the height of 6 inches, the haulm of the Peas in the dressed portion began to grow more rapidly, and at the same time to become more robust. The haulm of the Peas on the undressed portion was rather spindly in comparison, and at the end of its growth was about 3 inches shorter than that on the neighbouring plot.

Fig. 131.—Peas showing the effect of phosphatic manure.

The Peas on two rows in each plot were gathered green, the remaining row in each plot was left for seed, and the following summary o the results shows the increase of produce due to the dressing:—

Description.	Gathered green from two rows.	Left for Seed from one row.	Remarks.
Manured plot...	6 pecks	4 pecks...	Haulm thicker
Unmanured	4 pecks	2 pecks	Peas earlier
Increase ...	2 pecks	2 pecks	...

Geo. Ludbrook.

ORCHID NOTES AND GLEANINGS.

ORCHIDS AT OAKWOOD, WYLAM-ON-TYNE.

THE famous collection of Orchids belonging to Norman C. Cookson, Esq., places it in the front rank in regard to size and good keeping, and also for the improved methods of culture practised there, as has frequently been demonstrated. The collection has markedly improved since the services of Mr. H. J. Chapman as gardener have been secured; the many houses, their heating arrangements, ventilation, and other important matters, have been thoroughly overhauled, and the specimens rearranged, and evidently everything has been carried out with excellent results.

THE ODONTOGLOSSUM-HOUSES.

The improvements in these are more evident than in others, although these plants were always satisfactory. More accommodation has been provided, the line of the old Odontoglossum-house being continued by a still larger structure; and between the old and the new houses a commodious, heated potting-shed and office, in which plants can receive attention without passing through the outer air, have been provided. The heating arrangements especially have received great attention. Mr. Cookson rightly considers that a large amount of radiating surface, maintained at a moderate temperature, is best for the plants, and he has had one of the Odontoglossum-houses furnished with seven, and another with eight rows of 4-inch hot-water pipes. Then there is ample provision made for storing rain-water; ventilation is carefully regulated, the highest results being attained by elevating each plant on a conical wire stand, devised by Mr. Cookson; and, generally speaking, everything which an old practitioner, who is also a clever scientific man, can devise, has been done.

Probably it will be news to many that the Oakwood collection is one of the richest in fine varieties of blotched forms of Odontoglossum crispum in the country. Old collectors like Mr. Cookson, always liked them for their rarity and beauty, but the rage for them has become so great of late years that vendors who can produce a really first-class novelty demand something equivalent to a "king's ransom" for it. Some of his best have been in Mr. Cookson's collection for years. Of O. crispum Cooksoni, a noble flower finely blotched, he has a considerable stock; O. c. Mundyanum, another Oakwood gem, is being increased slowly. O. × Andersonianum Cooksoniæ, the best of its class, came to Mr. Cookson from his uncle's garden many years ago; and others which have yet to make their mark in public are old residents at Oakwood. Of O. crispum Franz Masereel, the entire stock, with the exception of two plants on the Continent, is here, and strong specimens of three of the very finest yet seen viz., O. crispum Luciani, O. c. Lindeni, and O. c. Moortebeekiense. Other handsome spotted forms noted were O. c. Raymond Crawshay, fine in every respect and very distinct in colour; O. c. Kinlesideianum, with expanding buds showing the peculiar fimbriation of the segments; O. c. Sanderæ, a beautifully blotched form; O. c. Harold with showy segments indicating peloria; O. c. Kenneth, a showy novelty heavily coloured as in the O. c. fastuosum class; O. Pescatorei Lindeni, with violet spots; O. × Wilckeanum Rothschildianum; O. × Rolfeæ, Oakwood variety; O. × Adrianæ Cooksoniæ; O. × Hallio-crispum, from the original batch raised at Oakwood, and many others, which, like those mentioned, have received Awards when they were shown. But the chief attraction at this season of the year to an expert, is the marvellous health and vigour of the plants, their magnificent bulbs showing progressive increase in size, and the broad, stout vigorous new growths proceeding from them. These rare Odontoglossums are propagated with ease at Oakwood, and the original plants seem to grow with extra vigour in consequence of their being freed from the care of sustaining many back bulbs.

HYBRID ORCHIDS

and Oakwood have been associated for many years in the minds of orchidists, and the interesting pursuit is being as actively carried on as formerly. The houses of Phaius and Calanthe crosses have many fine specimens of P. × Cooksoni, P. × Cooksoniæ, P. × Norman, P. × Phœbe, P. × Oakwoodiensis, and other still unnamed hybrids. Many of them are crosses with P. tuberculosus, which has always thriven better at Oakwood than in most places, but not until recently, when Mr. Chapman placed the specimens of it on the staging, between taller plants, did it give entire satisfaction, now it grows "like a weed;" Phaius Humbloti is being used as a parent. The typical rose-tinted form, gave good results in P. × Oakwoodiensis, and still better is expected from a new one with white sepals and petals here growing. Calanthes are being worked up mainly to get good pure whites, and improvements on the blood-red "Oakwood Ruby" class, but those already flowered, including the new O. × triumphans, are difficult to beat; but where the flowers cannot easily be improved on, better and more floriferous habit is often secured. So far has Mr. Cookson gone in this direction, that at present there is a Calanthe hybrid sending up a flower-spike, and which came from seeds procured from a plant which was only fertilised a year ago. More of the same batch seem about to flower.

Odontoglossum seedlings are being raised from various crosses, and on the shelves in some of the houses are large quantities of Cattleya, Lælio-Cattleya, Lælia, and Dendrobium crosses, all doing well. Leaves for mixing with the potting material are used with a large proportion of the plants, and especially with the Odontoglossums, and their judicious use is here recommended.

In point of vigour, the Cypripediums give, perhaps, the most generally remarkable results, the foliage of many of the larger hybrids being developed in a very extraordinary manner, not only in size, but in substance, and little plants of a few months ago are now specimens. A striking example of this is C. × Venus, Oakwood variety, which was awarded a First-class Certificate on January 28 this year, then a very small plant; now it is a good potful. C. × Morganiæ, Oakwood variety, has enormous leaves, and three or four flower-spikes to a plant. The old form is noted for being a good grower, but shy flowerer; this grows and flowers equally well. Many others were in flower; among those noted being C. insigne Sanderæ, with eight flowers, and the better home-raised variety of it; C. × Niobe, C. × Norma, C. × triumphans, C. × Olivia, C. × Wm. Lloyd, C. × vexillo-Io, C. × vexillarium, a profusion of C. × Leeanum varieties, C. callosum Sanderæ, C. Lawrenceanum, and the Oakwood seedling of it, which is better in every respect, and various others, both named and new.

The Cattleya-houses have a fine lot of the forms of C. labiata, the C. Trianæi especially being of remarkable vigour, and many hybrids, some of which were in flower. C. Dowiana and C. D. aurea thrives well suspended near the glass of the roof, and a number of plants of Dendrobium Phalænopsis assisted in the display.

The Dendrobium-house has the Oakwood hybrids in good condition, and the work of augmenting their ranks is still proceeding. One of the earliest of the Oakwood hybrid Dendrobiums, D. × Venus, is still one of the handsomest, and two distinct forms of it are here grown, the one with white sepals and petals tipped with rose, and the other with uniformly bright rose segments.

The outdoor garden, in which Roses, flowering shrubs, and herbaceous perennials are much cultivated, has had an unusually prolonged and interesting show of flowers; and in Mrs. Cookson's favourite corner the coloured Nymphæa pond, with its edgings and borders of the neater and rarer herbaceous perennials and alpines, has been, it is said, a fine sight, the hardy Cypripediums especially having flowered well.

NURSERY NOTES.

MR. G. W. PIPER'S, UCKFIELD.

WHEN making an unpremeditated visit to Mr. Piper's Rose nursery in Sussex, on November 10, we were surprised to see the beautiful display of flowers upon the plants of the new Tea Rose Peace, which is being distributed at the present time. The variety was given an Award of Merit by the Floral Committee of the Royal Horticultural Society on September 3 this year, the Committee having considered it even then to have shown good autumn-blooming qualities, and our observations made two months later afford striking corroboration of this. The plants had made good growths, and each shoot produced large trusses of flowers upon erect stems. In colour the blooms are a very pale yellow, but in late autumn they are shaded with a little carmine. Whilst this Rose was still blooming, lifting time had already overtaken the nurserymen, and the "hands" were more than busy in satisfying orders for the popular varieties, one of Mr. Piper's sons remarking that everyone appeared anxious to be served at once. This work was proceeding in the home nursery, or the one at the rear of the seed shop; but upon walking a mile or so to the distant nursery, we found work of quite another character engaging the attention of the propagator in the low span-roofed houses, where stocks of new varieties are "worked up" in as short a time as possible. There were hundreds of tiny stocks in 3-inch pots, just grafted with growing shoots about half ripened. These very quickly callus and unite with the stocks if afforded a little heat, and they are constantly shaded from the sun's rays, being kept for the time in propagating-cases, in which the atmosphere is of a humid character. Most of the plants thus raised will probably become confirmed pot plants, and numbers of them will be sold in the small pots in which they have been worked; but others will be removed into 5-inch pots, and the remainder will be valuable to plant out, for certain new varieties meet with such prompt appreciation, it is impossible in the first season or two to raise such a large stock that it is likely to be left upon the nurserymen's hands. Some of the varieties noticed in these cases were Lady Battersea, Liberty, Ben Cant, Mildred Grant, Souvenir de Pierre Notting, the pretty Tea variety illustrated in these pages on October 13, 1900, p. 271, a cross between the much admired Maman Cochet and Maréchal Niel, and Frau Peter Lambert, a rosy-carmine form of Kaiserin Augusta Victoria.

Three new continental Roses, considered at Uckfield to have great promise, are those following:—Franz Deegen, an apricot-tinted Tea, very strongly scented, but having rather short petals as we saw the flowers; Goldelse, described as a H. T.; a large and full flower of deep yellow colour, very fragrant; and Gustav Sobry, a H. T., described as of golden-yellow colour, becoming paler with age, also very fragrant. The two varieties last-named were not in bloom.

In the larger houses there were fine stock and pot plants of many varieties, including Mr. Piper's popular Sunrise, the sport from Perle des Jardins, which not only grows well, but flowers from every shoot. An old plant of Catherine Mermet, still against the side of the house, afforded one of the two identical sports, now known and prized throughout the country as Mildred Grant.

CHRYSANTHEMUMS.

CHRYSANTHEMUM MRS. G. THOMPSON.

When calling at Messrs. Cutbush & Sons' nursery, Barnet, on November 15, a large quantity of this variety came under my notice. The firm thinks this is one of the best late white varieties, and it lasts till the middle of the month of February. The plants are well set with flower-buds, and are useful for decorative purposes, or the flowers for cutting. *S. C.*

Decorative Chrysanthemums.

When reading the reports of Chrysanthemum shows in various parts of the country, it is apparent that very little notice is taken of the single-flowered varieties, which for cutting and decorative purposes are extremely effective, and deserving of greater attention than they usually obtain. This season, the larger-flowered varieties are not so satisfactory as usual in many gardens; but the single-flowered decorative varieties, which require much less attention from the gardener, and are neither stopped nor disbudded from the time they were put into their flowering pots in June, are very beautiful in colour of flower and in their foliage. Here we have a good many of these varieties, not all good alike, since some of them are rather too heavy for singles.

I have six varieties which I grow in quantity, viz., Maggie Wells, a bright red; Emily Wells, pink; Terra-cotta, very beautiful; Marguerite, a beautiful white; Yellow Empress, excellent; and Mrs. Langtry, light pink, beautiful, and sweet-scented. These varieties are vigorous growers, they flower abundantly, the plants remain for a long time in flower, and one can cut and come again.

I also cultivate a large number of the old incurved varieties, Mrs. G. Rundle, Donna Maria, and Mrs. Dixon, which are excellent for cutting purposes, and the three varieties placed together are very effective. These plants are disbudded as early as possible, and about twelve flowers are left on a plant; and we still stick to the three old varieties, Peter the Great, Ethel, and Julie Lagravère, for Christmas decorations. W. H. Lincoln is good for this season; but Peter is very effective as a plant supported by one stake in the centre, stopped, and neatly tied out, potted into a 10-inch pot in June, or disbudded, it keeps such beautiful foliage. *Bailey Wadds, Birdsall, York.*

The Single-flowered Varieties of Chrysanthemums.

There is apparently a danger of the true single-flowered Chrysanthemum being displaced by a class not really single, and yet worthless otherwise, which may be described as degenerate, as they retain none of the neatness of the typical forms. There is no reason why all single-flowered varieties should be of one type, as in the case mentioned, yet there is a type which appeals to a large number of persons. The flower or variety that comes nearest to this is Miss Anderson, while Miss Rose and Oldfield Glory are others not differing greatly. For single varieties in all colours serviceable for decoration there is room, and such are not wanting admirers, and it is for these that I now plead. At the same time I would utter a word against that big-eyed set with weak stems, and distinctly more feeble stalk that droop readily, and cut a sorry figure after being packed for a few hours. These are probably the degenerates of the big bloom class, which afford no delight to one possessing a liking or light, beautiful, and elegant flowers. *E. H. Jenkins.*

April-struck Chrysanthemums.

There have lately come under my notice a number of these plants growing in 48's and 32's, and not yet at their best. The smaller-sized plants are useful for decorative purposes, while good blooms are furnished by those in the larger pots. Several of these plants carry three flowers each. The best varieties are Australie, Mrs. H. Weeks, Lady Hanham, Viviand Morel, Charles Davis, Mr. A. Barrett, and Nellie Pockett; all these were struck last April. *S. C.*

Chrysanthemum October Queen.

This free-flowering variety appears to be equally entitled to the title "Queen of November," as, on November 10, the clumps were carrying numerous flowers, the crimson colour of which was singularly warm-looking and effective. The clumps referred to have been planted nearly three years, and some deterioration in the blooms was observed in more open-centred flowers. Except for this, the effects obtained were not met with in any other variety at that date. I have heard it remarked when border Chrysanthemums are being examined towards the end of the month of September that October Queen would be too late, which is a sort of inference that frost will spoil it, or that the general conditions of the weather would be against it. Such a remark, however, while very true of white and yellow Chrysanthemums as a rule, does not seem true of this variety, and the fact that it rarely suffers from the weather is proof that it is a good late bloomer. *E. J.*

TULIP TREE.

In Mr. John Murray's recent publication, *A Foreign View of England in the Reigns of George I. and George II.*, composed of letters written by Monsieur César de Saussure, there is an interesting paragraph about Tulip trees at Waltham Abbey in 1727. Time, or the ruthless wave of bricks and mortar, has doubtless long since swept away all traces of the beautiful trees he describes. Mons. de Saussure writes:—

"About two months ago I went on a little pleasure party with two of my friends to Waltham Abbey, which is fifteen miles distant from London, and is situated in the county of Essex. The beautiful mansion belongs to Sir Samuel Jones, a nephew of Dr. Walker, present Archbishop of Canterbury. Waltham Abbey is a fine and large mansion, surrounded by a moat and battlemented works; the gardens are spacious and well kept, but the rarest and most curious thing we saw—the aim of our journey—was a leafy tree, in shape like a ball, with flowers resembling those of a garden Tulip in a wonderful way, presenting the same appearance, and having the same odour. The tree is, I suppose, about 40 feet high; two men with their arms outstretched can hardly clasp its trunk; its leaves are large and triangular, except that the three points seem to have been cut off; the flowers are quite yellow, the buds being whitish. I was told that this tree bore no fruit; when I saw it, it was covered with blossoms, and the effect was charming. I may say that it is the handsomest and the most curious tree imaginable. In these same gardens there is another Tulip-tree, but nothing like as tall or as handsome as the one I have described.

"M. Loys de Warrens, who, I expect, is by this time at Lausanne, can tell you more about it if it interests you, for he has been spending seven or eight months at Waltham Abbey."

In sending you this extract may I add that it seems to me a pity that Tulip-trees and Cedars of Lebanon are not planted more frequently; as regards the latter, this is due, perhaps to Cedrus Libani being somewhat expensive, and not easily transplanted. I am told they should not be moved before March or April. *E. D. Till.*

Birmingham Show.—Messrs. J. Peed & Son, Roupell Park Nurseries, West Norwood, showed a large quantity of hardy fruits, Apples, Pears, &c., at the Birmingham Show on the 11th and 12th inst., and were awarded a Gold Medal.

SOUTH AFRICA.

NATAL.

Round Howick the country was burnt up for want of rain, and there were consequently few flowers—a few yellow Hypoxis, &c.—pretty well exhausted the flora of the veldt. Howick is famous for its waterfall, which has a drop of 364 feet, this being double that of Niagara Falls. When the river, the great Umgeni, is in flood, the effect is described as magnificent. Over the Trap-rock formation, which seems to prevail about this part of Natal, some two miles below the falls, and on the banks of the river, which showed evidence of being at times flooded, grew large quantities of Crinum longifolium; some few had the long strap leaves, but the great mass had short, broad leaves in rosettes. I am writing to Mr. Medley Wood to find out if it is another species or only a variation. The white Sparaxis pulcherrima seems to have reached its limit at Howick; from this to Colenso the species is a beautiful rose, and abundant along the railway banks. Brunsvigia Josephinæ is met with, but not abundant; Cyrtanthus angustifolius did not appear abundant, but this may be on account of the dryness of the ground.

Arriving at Colenso, I ascended Hlangwane Hill, and surveyed the battle-field.

Arriving at Ladysmith, the battlefields again claimed my attention, going over Waggon Hill and Cæsar's Camp. The saugars referred to by Conan Doyle were mostly erected after the battle, against another attack; but the Boers had enough of taking the initiative. Reading on the spot Conan Doyle's description of the battle on each hill (pp. 223-231), it is most realistic, and demonstrates conclusively that our officers are slow to take a lesson from their opponents, reminding one of an artist who only drew with compasses. Our men were not entrenched, and had little or no protection. The attacking party had the same advantage as the defenders; it was therefore a fair stand-up fight, with equal advantages, and fully showed that the Tommies were the equals of the Boers.

The flora in these parts is by no means rich, but when the rains come, no doubt there will be a revival, and the botanist may find many things worthy of his herbarium. One plant, the Aloe, was in considerable evidence, and I collected seeds from this plant on Waggon Hill, Cæsar's Camp, and Colenso. Thinking that many who have lost relatives in the places named might like to possess a plant from the spot where the dead rest from their troubles, I am sending some to my sons to distribute gratis to all applicants, at King St., Covent Garden, London. The species is the same in the three places named; applicants will therefore kindly ask for seed from the special place where their relative lies. Or it may be many who carry in their bodies wounds in these battles would like to have a remembrance of the event in their greenhouse, rockery, &c. To-morrow I go to Spion Kop.

Spion Kop.

On the northern side the Kaffirs had just burnt the grass to take full advantage of the occasional showers, and the young grass was commencing to sprout nice feed for the numerous goats and sheep of these "Black Gems;" at the bottom of this the strong position of the Boer, extended to the left. Here our carriage drew up, and by a well-marked path we ascended till we came to a made path, which led to the graves and the numerous mounds there erected; on white tablets let into the grey granite the names of the fallen were recorded. All the graves connected with the advance from Frere are under a curator, whose duty, with a staff of Kaffirs, it is to move about from place to place destroying weeds and white-

washing the stones, and in some cases getting ready for tree-planting. This curator is an Isle of Wight man, and seemed very enthusiastic in his work. There were few flowers to be seen up this northern slope (I need not say the exposure is equal to our southern slopes in Europe). The herbage was coarse, and the same species of Aloe was in evidence that I had met with on Hlangwane Hill, Waggon Hill, and Cæsar's Camp. The flora improved as the graves and monuments were passed. On the southern slope, facing the Tugela, Helichrysums and other Everlastings were abundant; one species had leaves as white as the whitest frosted silver, but the flower-buds had not expanded. This species was very abundant; and there the herbage was not unlike our own meadows in the early summer months, some of the grasses being in flower. Descending to the narrow ridge, which I took to be the same where the British ascended: at the extreme point of this ridge the width was little over twenty-five yards; this continued to widen to forty yards. Then sixty yards wide till the bottom of a hump, or abrupt rise in the land, the width was about 100 yards. On this ridge grew a few trees, and I think Conan Doyle must have got a little mixed in his remarks. Our men must have passed over this hump, as then the ridge widens out to at least ½ mile or more, and here the fighting must have been with little or no cover, and the stony slopes held by the Boers facing our men must have been the ground, and the ridges which the Boers crept round behind our men, and facing the Tugela. The descent is very steep and grassy, while the point from which they made the night ascent is stony, and comparatively easy of ascent. It was about here I found a species of Aloe different from the one I had been gathering seeds, and I collected all the seed-heads I could find, but as there had been a good deal of rain, I am waiting till the seed-pods are dry; and, in about a week from this date should the seed be good, I will post it to my sons to distribute gratis to those who lost friends or relations on Spion Kop.

It is seldom I anticipate sights I am about to visit. I did so in this case, and saw in my dreams rugged boulder-strewn paths made by goats and sheep; but to my surprise I found nothing more rugged than the Malvern Hills in Worcester, perhaps a few more large stones. Much of the romance of the pen-pictures which have appeared in our newspapers, and even in Conan Doyle's book, will be found exaggerated. There are really no formidable mountains about here, but the Boer guns and rifles were the problems Buller had to circumvent in fighting his way to Ladysmith. *Peter Barr, V.M.H., Ladysmith.*

A VISIT TO HUNGARY.

THE Essex Technical Instruction Committee, through its officials, has done many things which may well be taken as models by similar bodies throughout this country. On numerous occasions mention has been made in the *Gardeners' Chronicle* of the work of the biological and horticultural departments, but now the latest achievement of the chemical section claims our attention.

For several years Mr. F. S. Dymond, the staff chemist, has organised parties of farmers and others interested in agriculture, and has taken them to continental countries to see what is done there. Fresh fields for exploration have, of course, to be found, and it becomes necessary, as time goes on, to go further from home. During May and June last Mr. Dymond successfully took a party, which numbered forty-seven, for a fortnight's tour in Hungary.

Arrived in Vienna, our countrymen found themselves, practically speaking, the guests of the State. They had first-class corridor carriages with sleeping accommodation placed at their disposal on the Government railway, and their three Hungarian conductors were the Agricultural Commissioner whose head-quarters is London, the Secretary in the Ministry of Agriculture, and the Secretary of the National Agricultural Society of Hungary. The report of the subsequent journeyings is embodied in a profusely-illustrated volume now being issued from the Essex County Technical Laboratories.*

Although there is an immense amount of valuable matter in the book, our space will only allow us to touch upon those points of greatest interest to our readers. Four-fifths of the country will produce Maize and Grapes, and the most critical month in the year for the cultivator is May, when frosts often cause much damage, while the overflow of rivers has to be carefully guarded against. The area covered with fruit, kitchen, and flower gardens has doubled since 1888, and now is 1,065,000 acres; but Hungarian horticulture still suffers from want of capital and lack of efficient gardeners. The State possesses thirty-six nurseries, which annually produce 500,000 grafted stocks of Vines. For some years the State has planted fruit trees on both sides of the high roads, now 5,600 miles are so planted with 800,000 trees, and the road surveyors are given courses of lectures on the treatment of them. The Government encourages the turning of surplus fruits to account, and has established drying-kilns, wine-presses, and distilleries. The demand for flowers and decorative plants is still greater than the supply.

The Essex party first of all visited the estate of Archduke Frederick. The next important stopping place was the Agricultural Academy at Magzar Ovár. The usefulness of the botanical section of the museum containing, for instance, series of roots of cultivated plants, created comment, though the verdict passed is that there was not one quarter the space or light necessary for the proper display of the specimens. At an experimental station in connection with the college, plant physiology, pathology, and seed control receive attention. The usefulness of the last piece of work is well illustrated by the following paragraph:—

"In the current price lists of the majority of merchant seedsmen, new plants are recommended so strongly for cultivation that a large number of farmers allow themselves to be enticed to buy these at a dear price, and leave the proving of them till after the bargain. In the majority of cases these farmer's plants are of small value. The station has tried a large number of these high-priced and pretended novelties, and by the publication of the results obtained it has attained the object which it aimed at. The merchants rendered more cautious by the mishaps of the past, now send seeds to the trial station before putting them on the market. If the results there obtained are worthless, the merchants give up the idea of putting them up for sale."

We must leave the party to visit farms, creameries, and farmers' co-operative societies, and join it again when it gets to the Royal domain of Gödöllö. Here a bee farm has been set up by the State, which has also seven travelling instructors. The farm is 60 acres in extent, and among the 300 hives, all types may be found. A botanical garden is attached, in which plants suitable for bee-food are cultivated.

The value of the honey harvest in Hungary is £170,000 per annum. Bee-keeping is taught in the training-schools, teachers and priests are assisted to introduce bee-farming into their villages, and the necessary implements are also distributed free of charge by the Government in deserving cases.

The Agricultural Museum at Budapest was one of the institutions visited; the collection in this case also need a far larger building for their display than that in which they are temporarily housed. The Experimental Station was visited; also the Horticultural School, which has 20 acres of gardens. Thirty-one students holding scholarships receive a three years' training in all branches of gardening and fruit-culture. A special feature seemed to be the training of fruit-trees into spiral, lyre-shaped, and other forms. Peaches are successfully grown in 6 and 8-inch pots.

All kinds of farms come in for attention, including that at Pallag, in connection with the Agricultural College. Here, again, is a fine biological museum; the wire gauze cages used to exclude insects in the hybridising experiments call for special notice.

Very much more interesting matter could be culled from Mr. Dymond's excellent report; but all that can be done here is to point out how much the Government and co-operation do for agriculture in Hungary, and how hospitable and well-disposed towards England the Hungarians are. *Wilfred Mark Webb.*

* Published by John Dutton, Chelmsford, price 2*s.* 6*d.*

FRANCE.

ANGERS.—A recent visit to the gardens here, revealed to us what a difference a slightly higher temperature makes to vegetation. For instance, on November 1, we found the bedding stuff looking its very brightest. The Salvia splendens was quite a blaze, Cassia floribunda also was literally smothered with flowers; less conspicuous was the little blue Agathea cœlestis, which is freely used as an edging. Against the walls are such things as Solanum jasminoides, Bousingaultia baselloides, and Poinciana Gilliesii, in full bloom. In the borders we noticed a very tall Phlomis with glabrous leaves and orange coloured flowers, which appears to be very useful for the autumn. Another plant worth noting for the same purpose is Ampelopsis cordata, with bunches of vivid blue berries. On the lawns, great clumps of Papyrus antiquorum give a graceful effect; while for boldness by the waterside, nothing can equal Colocasia esculenta.

Among water-plants, the Cape pondweed (Aponogeton distachyon) was in full flower, as also was the Marsh Marigold (Caltha palustris). The trees were fast losing their leaves; the Maidenhair trees were a golden-yellow, and the Poplars too. The latter are quite a feature on the banks of the Loire, and on a bright sunny day the effects of reflection in the water are very beautiful. The evergreen Magnolias, which grow to a great height in this district, still put forth an occasional flower. A few of the Chestnuts on the boulevards have flowered prematurely and are bearing young green leaves. Conifers are very plentiful here. There is one worth mentioning, Wellingtonia gigantea pendula, of which there is a specimen 45 feet high. It is a remarkable tree, and resembles nothing so much as a corkscrew; it is more curious than beautiful. *Leo Farmar, Café Piffard, Ponte des Ponts-de-Cé, Angers.*

CAMBRIDGE BOTANIC GARDEN.

STREPTOCARPUS ARMITAGEI, Baker, fil., and S. Moore, in *Journal of Botany*, 1901, p. 262. —This evidently charming plant is a near ally of the magnificent rose-red S. Dunni, figured in the *Botanical Magazine*, 1886, t. 6903. Its colour is much the same, though perhaps deeper, but it appears to differ in having a corolla which is much less funnel-shaped and straighter, with lobes which do not spread so flatly open, though this may be the consequence only of dull weather. I do not notice that the calyx lobes are broader, or that the pedicels are appreciably shorter. My flowering plant, however, may not be perfectly developed, having travelled, rather more than a year ago, under the tribulation of a dry box, which

it has never perfectly recovered from, if lack of perfect greenness may be taken as a guide. It is certainly not monophyllous now, as described, having four leaves. The largest is 9 in. long, by 3½ in. wide, thus rather exceeding the description;

FIG. 132.—STAMINAL COLUMN OF BEGONIA BOLIVIENSIS.
(SEE P. 393.)

as does also the peduncle, which is 4½ inches long. The lower part of the inside of the corolla is very prettily lined with deep red and yellow—a marking which seems to differ from that of S. Dunni—and the outside of the corolla is correspondingly yellowish. While S. Dunni is a native of Spitzkop, in the mountains of the Transvaal goldfields, at elevations of 3,600 to 6,000 feet, this is a native on the summits of the Saddleback Range, Barberton, also in the Transvaal. *R. Irwin Lynch.*

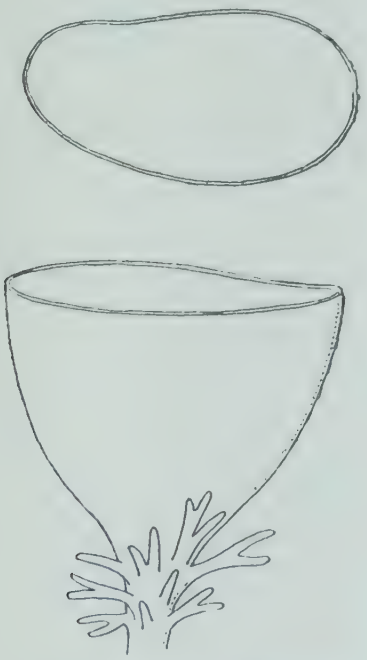


FIG. 133.—PITCHER FORMATION IN STAMENS OF CRESTED BEGONIAS.
(SEE P. 398.)

SMALL FRUIT.—Whilst, according to the Agricultural Returns issued by the Board of Agriculture, there was a decrease in the area devoted to most of the agricultural crops of Great Britain up to June 4, 1902, there was an increased acreage returned under small fruit.

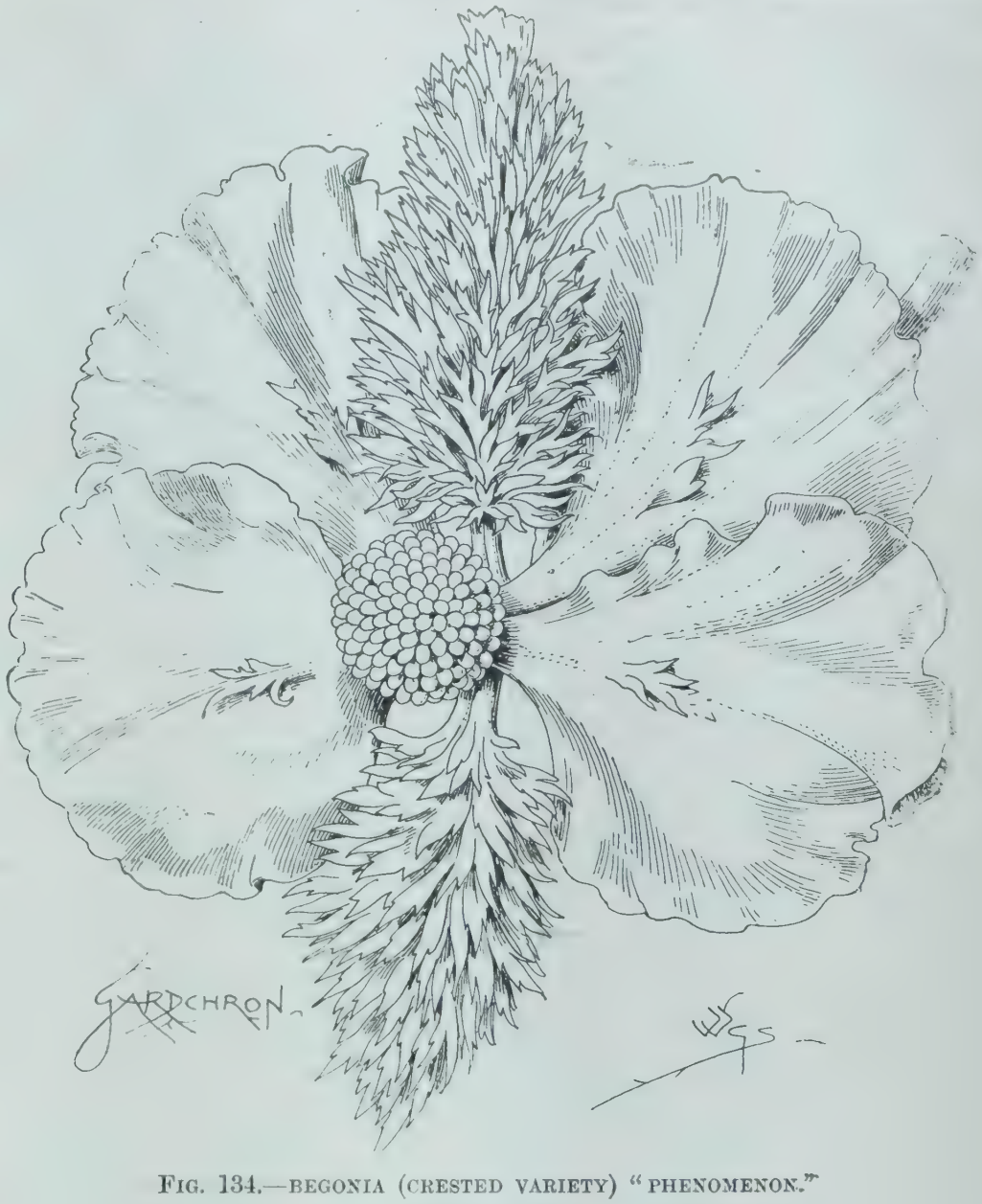


FIG. 134.—BEGONIA (CRESTED VARIETY) "PHENOMENON."
(SEE P. 398)

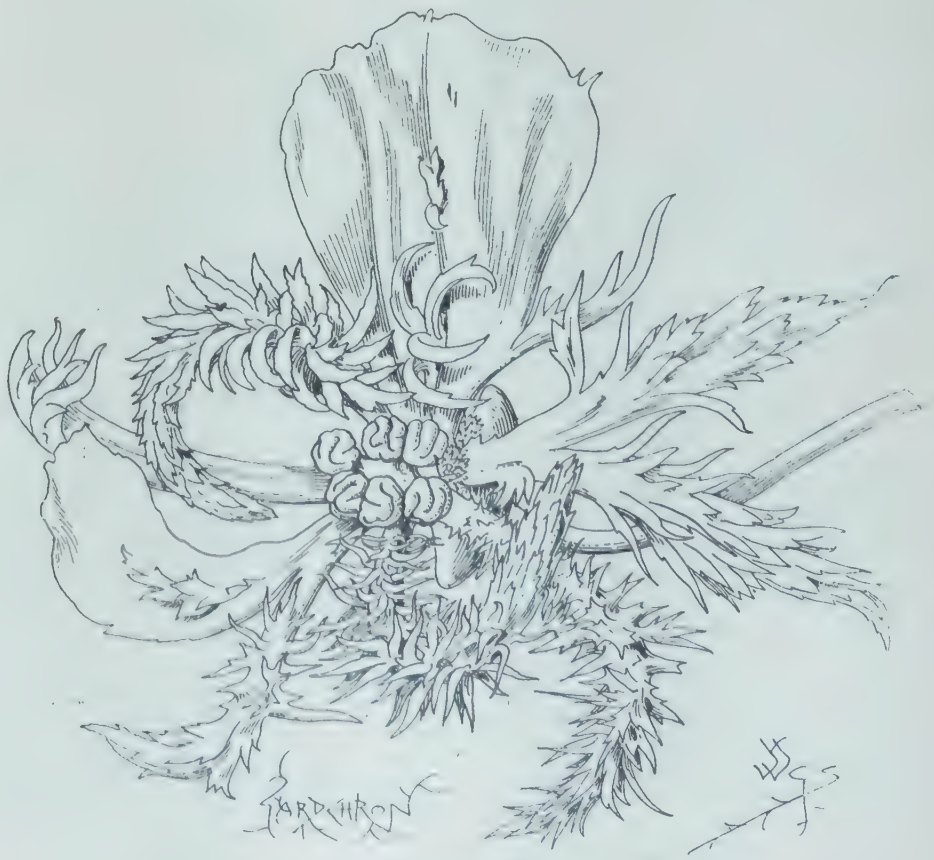


FIG. 135.—BEGONIA (CRESTED VARIETY) "PHENOMENON."
(SEE P. 398.)

NOTICES OF BOOKS.

The Book of Climbing Plants and Wall Shrubs. By S. Arnott. (John Lane.)

Number ten of the *Handbooks of Practical Gardening*, edited by Mr. Harry Roberts, is devoted to climbing plants, and has been entrusted to the very capable hands of Mr. Arnott.

Books of this character are apt to be the work of industrious compilers with more or less, generally less, practical knowledge of what they are writing about. But it is impossible to turn over these pages without realising that the author has an unusually large acquaintance with his subject, and a wide experience in cultivating the plants he mentions. He deals with soils, and the proper method of planting, and goes on to the enumeration of annual climbing plants, among which he might fairly have included the Scarlet Runner, which though perennial, is grown as an annual, and is not a little ornamental.

Hardy deciduous and herbaceous climbers come next under review, among which we find mention of Apios tuberosa, which is not commonly used as a wall plant. Of hardy evergreen climbers, the Ivy, with its many varieties, is far the best, though complaint is sometimes made of the dirt and dust that it harbours, and of the shelter it affords to sparrows and field mice. Some of the climbers mentioned under this heading do not retain their leaves all the winter, and not at all when the weather is severe, but that is a detail.

Hardy wall shrubs form a goodly list, which no doubt could easily be still more expanded. Large also is the list of greenhouse and stove climbers, or of plants that may be treated as such.

Separate chapters are devoted to the Rose and to the Clematis, out-of-doors and under glass. The Pyracantha is much used in the neighbourhood of London as a wall plant, and not without good reason, for it adapts itself excellently to a flat surface, covers it with a dense coating of leaves, and in autumn with a profusion of orange-red berries, which the sparrows and starlings leave as long as they can.

We cordially recommend this little volume to amateur or to professional gardeners, as both classes will find in it abundance of valuable hints.

Chemistry of the Farm, by R. Warington, M.A., F.R.S. (Vinton & Co.)

When a book reaches its fourth revision (fifteenth edition) it is clear there is not much left for the reviewer to do. The public has made up its mind and given its verdict, and nothing remains but to publish revised editions as often as need be, and reissues whenever the publishers deem it advisable. The chief differences between this and previous editions, so far as we have seen, consists in the fuller treatment bestowed on the sections relating to the feeding of animals. The nature and the amount of food to be supplied are shown to be dependent on the nature of the animal, its age, the work it has to do, and the time occupied in doing that work. Many foods can, it is pointed out, be substituted one for the other without altering the value of the whole diet, and thus variety may be introduced into a dietary, and the farmer may exercise economy by watching the market, and by purchasing those foods otherwise suitable which happen to be the cheapest.

Easily-grown Hardy Perennials, &c. Illustrated by 255 photographic reproductions. By George Vos, B.A., editorially supervised by T. W. Sanders. (London: W. H. & L. Collingridge, pp. xii: 276).

This is a detailed catalogue, arranged alphabetically, of the principal hardy perennials, including bulbs and tubers. First the scientific name, which can be verified, is given, and then the popular one, which cannot be checked; afterwards the Natural Order to which the plant belongs is indicated. This is followed by an explanation of the name, often, of course, no explanation at all. There may, for instance, have been a French botanist of the name of Picot, but we never heard of him, and do not find his name in Pritzel. We have always understood that the name Picotee came from the French *picot*, a point, or spot, a pin-prick, in allusion to the minute spots which characterise the Picotee.

A brief description of the mode of growth and general appearance of each species is afforded, followed by cultural details based on practical experience. The numerous illustrations are mostly satisfactory and useful, although no scale of magnitude is attached, and the colour of the flowers is not always indicated. Few or no botanical details are given, and but little reference is made to the infinitude of variations in structure, habits of life, and adaptation to varying circumstances of soil, climate, and the endless conditions arising in the course of the internecine competition with other plants, and the warfare with insects and other enemies. These, when studied, add enormously to the interest attaching to the cultivation of plants. If these details be omitted or uncared for, we may roam through a garden as if it were a gallery of portraits or a waxwork exhibition; but if attention be given to them, then a walk in the fields or in the garden brings a pleasure comparable to meeting and having converse with the individuals, whom otherwise we only know by portraits.

In making these remarks we by no means wish to disparage the book before us; on the contrary, we think it one of the very best that has been published of its class, and the cultural details are especially valuable as clearly based on actual experience.

The Week's Work.

PLANTS UNDER GLASS.

By J. C. Tallack, Gardener to E. Miller Mundy, Esq., Shipley Hall, Derby.

Show Pelargoniums.—Both root and top-growth should now be sufficiently advanced to allow of the plants being transferred to their flowering-pots. In potting, do not disturb the roots on the outside of the ball. The soil may consist of turfy loam, which should be broken into pieces sufficiently small to be readily worked down between the ball and the pot, the finer particles being discarded, and silver-sand in quantity, so as to make the mixture feel gritty, together with some decayed horse-dung, roughly rubbed up. The drainage materials should be carefully placed, the potting firmly performed, and the ball not covered with the fresh soil. No water will be required by the plants for several days, and very little previously to the plants beginning to grow freely; but the stems and pots should be lightly syringed daily when the weather is bright and fine.

Lilium longiflorum.—Pot-up these bulbs as fast as they come to hand, employing a sandy mixture of soil, and keeping the bulbs low down in the pots, in order to allow space for a top-dressing of soil and manure being applied when the stems have reached a height of 2 ft. The pots should contain a good deal of drainage material, and one bulb in each 5 or 6-inch pot, large bulbs being placed in the larger pots. If several are put together in big pots, there is nearly always irregularity of growth if the plants are forced, and the larger sizes of pots are better for such bulbs as are allowed to come into flower at their natural time. Stand the pots for the present in a cold frame or pit, free from drip, covering each bulb with a handful of fresh green moss.

Forcing Azaleas.—The plants of most sections, including A. indica, A. rustica, A. amœna, and the hybrids of A. mollis, may now be brought into the forcing-house, if required in flower at a very early date. Of A. indica, a few only will bear forcing at a very early date; and of these, Fielder's White and Deutsche Perle are perhaps the best. Until the scales of the flower-buds begin to split, the temperature should not exceed by night 57°, and the air should be maintained in a moist and growing condition, combined with plenty of sunlight and frequent syringing, continuing this treatment with a slight weekly increase of the temperature day and night till the blooms are almost expanded, at which stage they may be placed in an intermediate-house.

Gardenias.—Plants in bud should be afforded bottom-heat of 80°, and a stove-heat overhead, or they will cast their buds entirely or produce deformed flowers. A small quantity of artificial manure will assist pot-bound plants. Syringe the plants freely with tepid water, and occasionally syringe with water containing a very small quantity of petroleum, kept thoroughly agitated during the time the syringe is being filled.

Pancratiums.—These are most acceptable plants during the winter, and any well-grown bulbs may soon be brought into flower by affording them a brisk heat after having been kept in a cool house, the sudden change giving the necessary impetus to the embryo spikes.

Camellias.—Big plants in good condition may be afforded large quantities of weak manure-water if the flower-buds are developing freely. The buds may be reduced to one on each shoot if thought advisable, but providing the plants are really strong and healthy, two buds on a shoot are not too many for a plant to carry, choosing the largest and the smallest so as to obtain a longer succession of flowers.

THE FLOWER GARDEN.

By R. Davidson, Gardener to Earl Cadogan, Culford Hall, Bury St. Edmunds.

Briar Rose Stocks.—It is now the time to collect wild Briar-stocks, and after trimming the roots and taps to plant them. Be careful not to leave the roots exposed to the wind and sun. Varieties of Briar differ much in growth, and I prefer such as have smooth, grey stems fairly free from thorns, which are always more free in growth than the hide-bound sort. In planting the stocks on well dug, rich ground, set them out at 18 inches apart in the rows, and the latter at 3½ feet apart; and place a mulch of half-rotten dung over the roots. If the staple be stiff, Roses on the Briar succeed better than on any other; but where such is light and sandy, Roses which are preferable are those budded on the Manetti stock, one that succeeds on light, porous soils better than any other, on account of the great number of fibrous roots it throws out. It must, however, be borne in mind that the Manetti Rose makes a stock fit only for bush Roses, but it should in no case be seen above the ground, as it is useless for forming even the shortest of stems. Manetti Rose cuttings may be made at this season, and inserted in soft, fresh, dryish ground in rows of about 9 inches apart, leaving only the tip of the cutting above the surface. The drying winds have little effect on cuttings inserted thus, and almost all of them will form roots.

Work in General.—Tree-leaves should still be swept or raked up, and taken to the leaf-heap for use in the making of hotbeds, &c.; the lawn must be swept occasionally when the turf is dry. Do not leave the fallen leaves in the front portions of shrubberies, but remove them or bury them on the spot, or put soil on them so that they cannot be blown about. The fallen leaves found at the back of shrubbery borders, if left where they are, will decay and provide sustenance for the plants. At this season many kinds of shrubs are gnawed or devoured by hares and rabbits that have found their way into the pleasure-grounds, but by surrounding the trees, &c., with wire netting of a suitable size of mesh to neat stakes driven in the soil, the rodents can be kept at bay. The damage caused by hares and rabbits in a night or two to valuable trees is sometimes irreparable, so that it is worth a little trouble to destroy them.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Phaius.—Although these plants are still making growth, much discretion will be required in affording water, otherwise spotting of the leaves may occur, which gives the plants an unsightly appearance. If growing in a moist house, damp the stages and the outside of the pots in fine weather. P. grandifolius and P. Blumei, and their varieties, P. bicolor and P. Wallichi, require water only when the compost has got decidedly dry, and then only in quantity sufficient as to make the compost moist in a moderate degree. Hybrid Phaius of which P. tuberculosus is one of the parents, viz., P. × Marthiæ, P. × Cooksoni, P. × amabilis, P. × Norman, require rather more water than the species mentioned above, but not any should be applied before the potting materials have got fairly dry.

Zygopetalum Mackayi.—The flower-spikes now emerging should be secured with neat sticks and ties, and the plants put into a light part of the intermediate-house. The black spot so frequently observed on the flowers of Zygopetalums is the result of affording water before it is needed by the plants. Keep the plants healthy by affording air whenever it is safe so to do.

Lælia anceps.—Stake the flower-spikes, leaving the former of sufficient length to support the tip when the whole of the flowers have expanded. New roots are pushing from the more forward growths, and such of the plants as are doing this may be afforded rather more water than others later in showing flower. Afford the fullest amount of sunlight.

Calanthes.—Most of the foliage having now ripened, the quantity of water applied should be much reduced. Let the flower-spikes be neatly supported, drawing them in to the desired positions, remembering that one of the charms of the Calanthes is the grace of the pendent flower-spikes. If Calanthes have been well exposed to sunshine, the spikes will be sufficiently strong to do without sticks and ties. When the flowers begin to expand, the plants should be removed from the house in which they have been growing to a cooler and drier one. In order to make a good effect with deciduous Calanthes, place the pots in a setting of Adiantum cuneatum, or some other nice dwarf Ferns. Weak Calanthes are the better for not being allowed to produce flowers, and such plants should be removed to a house having a minimum warmth of 55°, and afforded full sunlight.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Apples.—For the past fortnight the weather has favoured the fruit-tree planter, and unless severe frosts set in, such work should be pushed forward energetically. All newly-planted trees and bushes will be the better for a mulch of half-decayed manure or leaf-soil. For planting in orchards, choose standards worked on the Crab (wildling) stock, and do not allow for the first few years any grass to grow within 3 feet of the bole, as to allow this to occur is the impoverishment of the soil. The distance between trees in orchards depends largely upon the varieties planted and the nature of the soil, but 18 to 24 feet may be taken as a suitable one. In regard to varieties, the following will be found to give satisfaction in a general way :—Dessert: Devonshire Quarrenden, Irish Peach, Beauty of Bath, Blenheim and Cox's Orange Pippins, Hormead, and Adams' Pearmain. Culinary: Lord Suffield, Tom Putt, Bismarck, Pott's Seedling, Cox's Pomona, Lane's Prince Albert, Bramley's Seedling, Dumelow's Seedling, Beauty of Kent, and Newton Wonder. Pyramids and bushes may be planted at from 10 to 12 feet apart, and on good soils they need root-pruning at intervals of four years, or they get unfruitful and out of bounds. Espaliers or horizontal-trained wall trees may be planted at 18 feet asunder. The larger Apples, as Peasgood's Nonsuch, Warner's King, Gloria Mundi, and Annie Elizabeth, should be trained in this manner. Stakes ought to be placed to standard trees before the trees are planted.

Pears.—My remarks upon Apples apply also to Pears, excepting that many of the best varieties require a wall with a warm aspect to perfect their fruits. The best methods of training the Pear on a wall are the fan and the horizontal, especially when the wall is of a good height, and of these the fan is the better, as by this method a wall area is much sooner covered with bearing wood than is the case when trained horizontally. Trees worked on the Pear should stand 15 ft. apart, those on the Quince 10 feet; oblique cordons are useful for low walls, and by their employment a great number of varieties can be grown on a given space when set out at about 2 ft. apart. The Pear thrives best in a good loamy soil having a warm subsoil. The varieties Williams' Bon Chrétien, Louise Bonne of Jersey, Swan's Egg, Pitmaston Duchess, Jargonelle, Aston Town, and Bergamot d'Esperen, do well as standards; likewise Catillac, Vicar of Winkfield, Uvedale's St. Germain, and General Todtleben, stewing Pears. Marie Louise, Beurré Superfin, Winter Nelis, Doyenné du Comice, Fondante d'Automne, Glout Morceau, Josephine de Malines, Beurré Hardy, and Passe Colmar, should have preference for garden planting.

Filberts and Cobs.—These may well be planted as a shelter for fruit-trees at 12 to 15 feet asunder, having a clean stem so as not to be bothered with suckers; and include the Cosford among them, as it produces plenty of catkins.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq. Sherborne Castle, Dorsetshire.

Forcing.—After the spell of wintry weather lately experienced, the roots of Asparagus, Seakale, and Rhubarb, will respond to the application of warmth more readily than earlier in the season. In order to meet the demands at Christmastide and onwards, which in many establishments exceed those of other seasons, a greater number of roots should be put into forcing pits, &c. In the case of Rhubarb, allow the roots when dug up to remain on the surface of the ground for a few days. Seakale crowns may now be potted when dug up, and after affording water place the pots on the floor of the Mushroom-house for a few days before plunging them in the hotbed; or, in the event of the hotbed being too warm, standing them on the surface till the heat has declined to a safe figure. In the same way, let no risks be run with the Asparagus hotbeds, and after putting the roots in the forcing frame, cover them with some light soil, and tilt or remove the lights till the heat has declined. With this safeguard and not too wintry weather, Asparagus may be cut in a fortnight from the time of putting the roots in proper order in the frame. The dung-bed frames must be kept at the right degree of warmth by applying linings of prepared stable dung, which should be built up from the ground level or from the surface of the hot-bed as may seem advisable. Cover the frames with mats or waterproof canvas, but do not exclude light a moment longer than cold weather may demand, or blanched heads will result.

Carrots.—A sowing of the French forcing variety should be made at this date in a frame set on a mild hot-bed. If the bed on which the earliest Asparagus is being forced will not be wanted for a succession, the Asparagus-roots should be removed, and a layer 3 or 4 inches thick of exhausted Melon-bed soil spread over the bed, and Carrot-seed sown in drills drawn at 9 inches apart with an intercrop sowing of the short-topped forcing Raddish, if these are in request. If necessary, make up a bed for Carrot-forcing with tree leaves, and afford these a good trampling, placing the soil thereon when the heat has risen, and after a few days, and when all slugs have been caught, sow the Carrot-seeds. Immediately the tops of the Short Horn Carrot sown on warm borders in the beginning of August cease to protect the roots from frost, cover the beds with dry bracken or straw.

Jerusalem Artichokes, &c.—For tidiness sake, the stems of this plant should be removed and burned, and stable-litter put close at hand for protecting a part of the crop of tubers from frost. The same applies to Parsnips, Scorzonera, and Salsafy, all of which should be left in the ground till early in the spring. Snowball and the less hardy varieties of Turnips should be protected from frost with tree-leaves scattered among the bulbs, having first secured a supply for present use.

Urgent work.—Weather very favourable for all sorts of work has been experienced for the greater part of the present month; and if the gardener has taken advantage of the same, the wheeling of manure on to the quarters, trenching, &c., will be in a forward state. Land for early Peas may need trenching, which should be carried out at an early date, that also for the early sowing of Broad Beans. The Onion quarter will be all the better for being trenched, a bit of work that is better when done early in the winter, more particularly if the soil is heavy.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Earliest Peach-house.—In order to have ripe fruits in the month of April or early in May, the forcing of the trees should now commence. Only such trees as have been forced early for a year or two should be forced, and varieties that are well adapted for the work are—Nectarines: Cardinal, Early Rivers, Lord Napier; Peaches: Alexander, Amsden June, and Stirling Castle. To merely close the house for the first fortnight will be sufficient, unless there is sharp frost. The night temperature should not fall below 45°, still a very small degree of artificial heat should be applied. Till the fruits form, the temperature on mild nights may range from 50° to 60°, but when the weather is very cold at night allow moderate heat in the pipes, so as to secure a warmth of 40° to 50°, is enough. In bright weather by day, the temperature with sun-heat may rise to 65°, air being given in small quantities in the morning hours. Syringe the trees lightly in the morning, and damp down the paths sufficiently to counteract the aridity of the air in the house.

Early-forced Vinery.—The house should now be closed if ripe Grapes are wanted early in the month of May. The best varieties for early forcing are Black Hamburgh, Duke of Buccleuch, Foster's Seedling, and Madresfield Court. Vines only start away freely thus early when well established, and they have been forced early previously. For the first fortnight, if the weather be mild, no fire-heat will be required, and in any case but little fire-heat should be afforded before the buds swell, at which stage a warmth of 55° at night may be maintained, a little less on cold nights, and 10° higher by day. In order to get an even break, secure the Vines for a time above the front hot-water pipes; syringe them once or twice a day according to the state of the weather, allowing them however to become dry before evening, damp down the paths and walls, and maintain the house in a moderately moist state. The air afforded is best admitted through the upper back wall ventilators, and it is better if it pass through some building at the back before entering the vinery.

Winter Cucumbers.—The plants here are doing well planted in the Cucumber-house on the top of a bed of fresh leaves 3 feet deep, and but a small quantity of soil that is rough and turfy, and mixed with short stable-dung. The leaves afford excellent drainage, and with two hot-water pipes running through them, sufficient bottom-heat is afforded. The plants being established now cover the trellis, and are bearing Cucumbers. When the roots appear through the soil, sprinkle some safe kind of fertiliser on the bed, together with a small quantity of fresh turfy loam and fresh horse-droppings. When applying water, occasionally put a pinch of sulphate of iron into it; crop very lightly, and keep the foliage and growth regulated at short intervals of time. Fumigate with XL-All occasionally; do not syringe the plants, but damp down sufficiently to counteract aridity. The night temperature may range from 65° to 70°; in severe weather, cover the roof rather than resort to hard firing.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the PUBLISHER.

Letters for Publication, *as well as specimens and plant for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

APPOINTMENTS FOR DECEMBER.

TUESDAY,	DEC. 2	National Chrysanthemum Society Exhibition (3 days) / Scottish Hort. Assoc. Meeting.
TUESDAY,	DEC. 9	Royal Horticultural Society, Committees Meeting.
THURSDAY,	DEC. 25	Christmas Day.
FRIDAY,	DEC. 26	Bank Holiday.

SALES FOR THE WEEK.

MONDAY to FRIDAY, DECEMBER 1 to 5—
Dutch Bulbs, by Protheroe & Morris, at 67 & 68, Cheapside, E.C., at 11 A.M.

MONDAY, DECEMBER 1—
Bulbs, at Stevens' Rooms, at 12.30 and P.M.

TUESDAY, DECEMBER 2—
Lilies of the Valley, by Pollexfen & Co., Pilgrim Street, Ludgate Hill, E.C.

WEDNESDAY, DECEMBER 3—
Bulbs, at Stevens' Rooms, at 12.30; Palms, &c., at 3 P.M.—Fruit Trees, &c., at Platt Nurseries Borough Green, Kent, by Protheroe & Morris, at noon.—Lilies, &c., by Protheroe & Morris 67 & 68 Cheapside, E.C., at 5 P.M.—Azaleas, Palms, &c., by Protheroe & Morris, at 11 A.M.

THURSDAY, DECEMBER 4.—
Orchids at Langley Park, Beckenham, by Protheroe & Morris, at noon.—Lilies of the Valley, &c., by Pollexfen & Co., Pilgrim Street, Ludgate Hill, E.C., at 12.30.

FRIDAY, DECEMBER 5—
Greenhouse Plants, &c., at Cock Crow Hill, Long Ditton, by Protheroe & Morris, at noon.—Orchids, at 67 & 68, Cheapside, E.C., by Protheroe & Morris, at 12.30.

TENDERS.

Trimming Trees, &c., Town Clerk, Town Hall, Upper Street, Islington.
Shrubs, Trees, &c., Town Clerk, Town Hall, Fulham.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —41·3°.

ACTUAL TEMPERATURES:—

LONDON.—*November 26* (6 P.M.): MAX. 55°; MIN. 48°.
November 27 (Noon).—Black fog; mild.

PROVINCES.—*November 26* (6 P.M.): MAX. 51°, Scilly; Min. 46°, Shetland.

Erratic Begonias.

As showing what can be done by hybridising, cross-breeding, and selection, there can be fewer more striking illustrations than those afforded by the Begonias. Well within the memory of the present race of horticulturists, Begonia boliviensis (introduced in 1864), B. Pearcei (1865), B. Veitchi (1867), and sundry other "tuberous-rooted" species were introduced from the Andes by PEARCE and others. Later on came B. socotrana, introduced from the island of Socotra by Prof. BAYLEY BALFOUR. What marvels have been raised from it in the Veitchian establishment we all know; or if we did not, the winter-flowering varieties now so brilliant would very soon enlighten us.

The late JOHN LAING was one of the first to take the original species in hand, and thanks to his efforts and those of many others, the tuberous Begonias of the present day originated. If a fashionable milliner is entitled to call her productions "creations," surely the hybridist is so to a fuller extent, for he has so directed the course of evolution as to produce entirely novel combinations such as have no existence on the Andes, in South Africa, in the island of Socotra, or in any other known habitat of the wild Begonias. He has converted elongated or stellate flowers into circular ones—the forms so beloved of florists. He has produced flowers which have a marked, though, of course, superficial resemblance to double Balsams, to double Camellias, or Carnations; to almost anything rather than a Begonia.

A purist might object, on the score of bad taste, to making flowers appear to be something that they ought not to be, and are not in nature. He would say, "improve" your flower as you like, accentuate its special characters, but do not improve it out of recognition as a Begonia; do not destroy its identity; let it be a Begonia still. The ordinary gardener, or the average lover of plants will be troubled by no such considerations. If the plants be decorative and attractive, if they fulfil certain requirements, that will be enough for him. If they satisfy the public taste or popular caprice, and thus bring pecuniary reward to him to repay his outlay, he will not be disposed to listen either to the counsels of æstheticism or to the discussions of philosophers. Be this as it may, the lovers of flowers for beauty sake alone, or the students interested in morphological problems, have alike ample means of indulging their proclivities, and are under no common obligations to the gardener for the means of so doing.

One singular fact may be noted in reference to these Begonias, and that is, that while new forms have been originated in such numbers and variety, the original species have disappeared from cultivation! Outside Kew, or some other botanic garden, B. boliviensis, for instance, is probably now nowhere to be found in cultivation. It has, however, left its traces behind, verifying the old Horatian axiom—

"Naturam expellas furcâ, tamen usque recurret."

To some such recurrence as this we attribute the extraordinary forms exhibited by Sir TREVOR LAWRENCE at a recent meeting of the Royal Horticultural Society, and two of which were drawn for us on that occasion by Mr. WORTHINGTON SMITH (figs. 133, 134, and 135). When first we saw illustrations of these extraordinary productions in the *Revue Horticole*, 1900, p. 644, we were at a loss to account for them, and looked on them as illustrations of—

"Such stuff as dreams are made of."

An examination of Sir TREVOR'S specimens supplies, nevertheless, what we think is a reasonable explanation of their remarkable appearance. In some of the sections of the genus of Begonia, of which B. boliviensis is an illustration, the stamens are grouped in elongated clusters (see fig. 132, p. 395); they are what a botanist would call either monadelphous or polyadelphous, according to the presence of one or more clusters, each group of stamens consisting apparently of many. Now such aggregates are known to consist not of so many different stamens, but of one much-branched stamen. In Mallows, in Hypericum, in some Myrtles (Callistemon), and some other plants, it is obvious enough to the naked eye, that in spite of the multitude of anthers there are but five primary stamens, and that each of these five branches into a vast number of subdivisions, each bearing its own anther.

In these extraordinary Begonias the same thing occurs: there are primarily three or five stamens, each of which branches into a vast number of sub-divisions, generally with an anther at the top of each. But in these new forms the sub-divisions are mostly barren. In fact, they are petals which have not made up their minds, if, for the sake of illustration, we may be pardoned such a phrase, whether to be petals or stamens.

It will be perhaps objected that the real stamens are present in some of these flowers and not in the shape of elongated clusters, but in roundish heads. That is quite true, but it bears out our opinion that these phenomenal Begonias which we know for certain to be of mixed parentage, are recurring to the condition which was the normal one in B. boliviensis or some other of their ancestors.

As to the tubes, horns, funnels, and other forms which add so much to the grotesque appearance of some of these flowers, they arise as many "pitchers" do, from disproportionate growth, by virtue of which the outer portions grow faster than the central or terminal portion, and thus at length a tubular formation results.

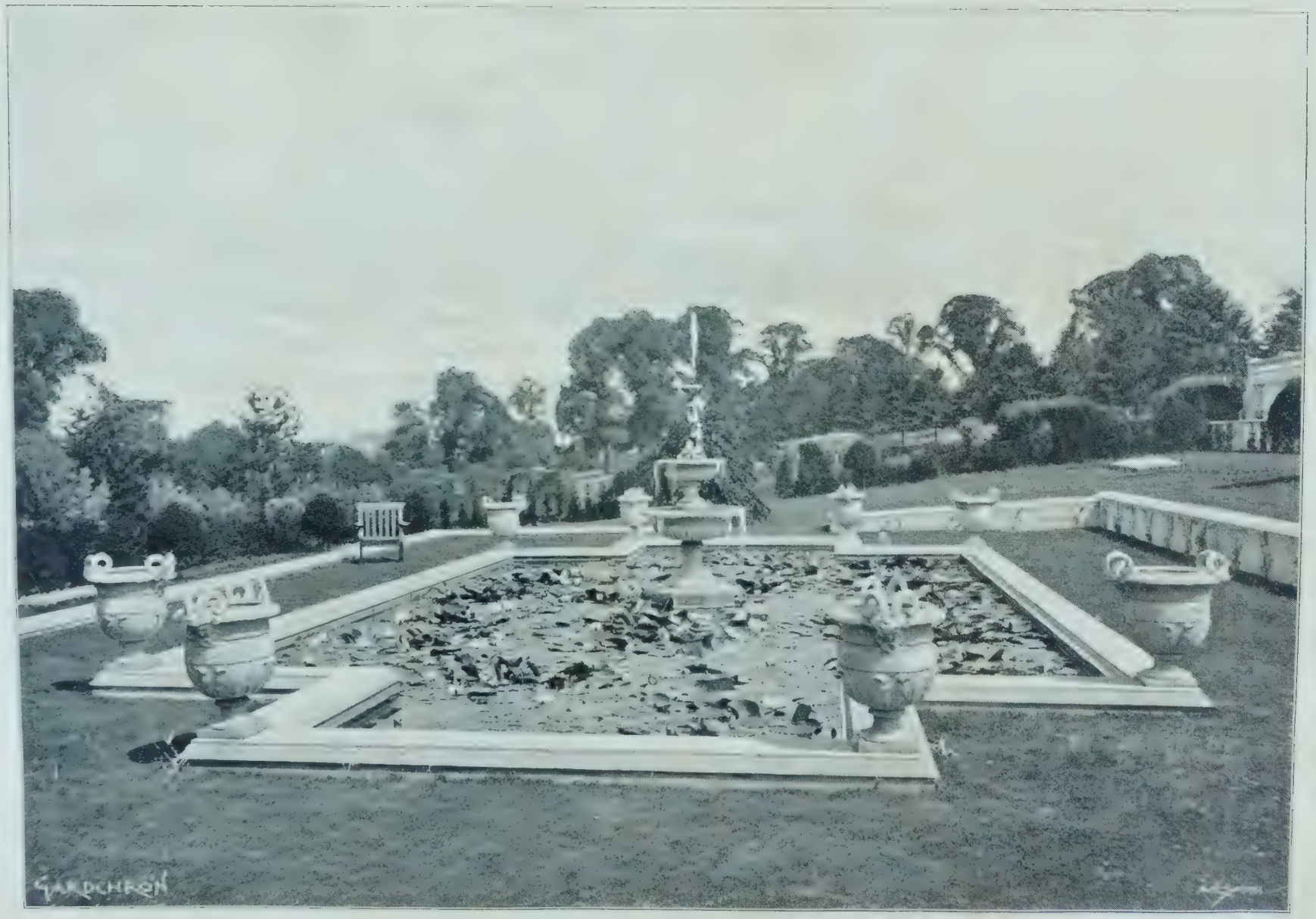
An illustrated account of the variations in the genus Begonia by the present writer will be found in the *Gardeners' Chronicle* for August 26, 1882. The most remarkable change effected since that time is the production of the crested Begonias, which have suggested the present note.

DOWNSIDE, LEATHERHEAD.—Our Supplementary Illustration, taken from a photograph by Mr. F. MASON GOOD, shows the Lily-tank in the gardens of that establishment as it was before the recent alterations, in consequence of which the tank has been doubled in size. It contains more than fifty of the newest and best varieties of Water-Lily, such as N. flammea, gloriosa, sanguinea, Ellisiana, Marliacea ignea, M. carnea, Laydekkeri, fulgens, and Gladstoniana. They do remarkably well in tubs, and flower very freely. Mr. MEASE, under whose charge they are, finds that it is best to divide the plants about every three years, else they get overcrowded. The soil in which they are planted is loam, cow-manure, and a little bone-meal. The re-tubbing is best done in the month of May.

ROYAL HORTICULTURAL SOCIETY.—There will be no meeting of the Committees on Tuesday next; but the last meeting this year will be held on Tuesday, December 9, in the Drill Hall, Buckingham Gate, Westminster.

—— At a general meeting of the Society, held on Tuesday, Nov. 18, forty-four new Fellows were elected, amongst them being the Right Hon. Lord HASTINGS, the Right Hon. Lady TWEEDMOUTH, Major F. G. PARSONS, Major H. TERRY, and Capt. HINCKS, making a total of 1,089 elected since the beginning of the present year.

NATIONAL ROSE SOCIETY.—At a recent meeting of the committee of the National Rose Society, the old question once more cropped up as to whether the award made in the case of a meritorious new plant or seedling should be made to the raiser, to the introducer, or to the exhibitor. As a matter of abstract justice, no doubt the award should go to the raiser; but as a matter of practice, the Society can only deal with the exhibitor and his exhibit, and has not, in all cases, the means of knowing the origin of the particular plant. Again, it may happen that two or more exhibitors may show the same plant at the same exhibition. To which of the two should the award be made—or should it be given to both?



THE LILY TANK, DOWNSIDE, LEATHERHEAD: PHOTOGRAPHED BY F. MASON GOOD.

Hence has arisen the practice of making the award to the plant. If the introducer or the raiser chooses to sell his rights unconditionally, he at least has no reason to complain if his good work is not publicly recognised. He might, in any case, receive the "congratulations" of the Society which looks to his merits and the merits of the plant, and not to any commercial arrangement he may happen to make with regard to it.

—— This Society appears, like so many other ventures, to have suffered in consequence of the postponement of the Coronation. The receipts from the show held in the Temple Gardens prove a considerable deficit. The Society is, however, so financially sound, and is so protected by guarantees and otherwise, that no material inconvenience need be anticipated, particularly in view of the large number of new members who joined the Society this season, mainly as a result of the show held at the Temple. An exhibition will be held in the same locality next summer, but there will be no southern exhibition in 1903.

NATIONAL DAHLIA SOCIETY.—The annual meeting of this Society will be held at the Hotel Windsor on December 16. The 1903 exhibition will take place on September 1 and 2, at the Drill Hall, Westminster. There will be a Conference on the Judging of Cactus Dahlias in the afternoon of the first day. Lord ILCHESTER has kindly consented to become a patron of the Society.

THE MASSACHUSETTS HORTICULTURAL SOCIETY.—We have on a previous occasion given illustrations of the Hall recently erected in Boston, U.S.A., but refer to it again to point out that the proposed Hall of the Royal Horticultural Society, as figured last week, is somewhat larger. The Boston Hall is 123 feet long by 51½ feet in width, and there is a smaller Hall 57 feet by 28 feet. One excellent feature of the larger Hall is a raised platform, 52 feet by 28 feet in measurement, and 4½ feet above the floor of the main Hall. The first floor, including the halls and lecture-room, covers an area of over 18,066 square feet. It is the third building erected by the Society, and is stated to be "without a peer in its arrangements for exhibitions, its magnificent architectural effect, and its solidity and durability of construction." The cost of the building was 290,997 dollars, and that of the land 225,000, making a total of 515,997 dollars. Doubtless the Committee charged with the details of our own Hall will give careful consideration to the particulars given in the last part of the *Transactions of the Massachusetts Horticultural Society*.

A FRAGMENT OF THE PARTHENON FRIEZE FOUND ON A ROCKERY.—Dr. A. S. MURRAY, Keeper of Greek and Roman Antiquities in the British Museum, read a paper before the Royal Institute of British architects recently. Incidentally, he mentioned that a year or more ago he received from a clergyman a copy of a Greek inscription on a piece of marble in a rockery in Essex. It turned out to be an inscription which had been missing since about 1771, in which year it was published in the *Archæologia of the Society of Antiquaries*. The story was that Stuart, when in Athens, preparing the drawings for his famous book, had picked up this inscribed piece of marble, and, after changing hands several times, it was eventually found on an estate in Essex, once belonging to a well-known antiquary, THOMAS ASTLE. The inscription is of no little historical interest, being part of a monument erected in Athens in honour of volunteers from Cleonæ, who had fought on the side of the Athenians (457, B.C.) in the battle of Tanagra against the Lacedæmonians and Eubœans. When the copy was sent to Dr. MURRAY, he noted that an important part of the inscription was still missing. Since then, however, a son of the present owner of the estate had found that part in digging round the rockery. The larger piece has a bleached appearance from long exposure, but the fragment lately dug up looks as if it might have been brought from Athens the other day. Two or three months ago the gardener, in digging beside the old rockery, came upon what has turned out to be a fragment of the Parthenon frieze. Though found under the earth, the fragment must have been long exposed to severe English weather. Down the face of the sculptured horseman the rain had driven furrows, which take away some of its charms. This fragment does not appear in any drawings made before Lord ELGIN's time. It had fallen before then, most likely during the gunpowder explosion within the Parthenon in the seventeenth century.

ROSE "CORALLINA" ON NOVEMBER 18.—Our correspondent, Mr. J. JEFFREY, St. Mary Isle Gardens, Kirkcudbright, sent us some beautiful Roses, Dahlias, &c., which he gathered in this favoured locality on the above date. Most beautiful of all, however, were the richly coloured blooms of the new Rose Corallina, which Mr. Jeffrey says has produced flowers continuously since the commencement of the month of June.

GERMINATION OF POLLEN-GRAINS IN WATER.—It is well known that pollen-grains can be artificially germinated in water, or in water to which a little sugar has been added; and M. PIERRE PAUL RICHTER communicates to the *Comptes Rendus* for Oct. 20 the result of trials made by him to discover how far the presence of stigmata from allied or distinct species affected this germination. He pronounces that "the pollen of a certain number of species which do not germinate in pure water, yet may do so if to this water a stigma of the same or of an allied species is added. In the presence of a stigma of an entirely different plant, the grains germinate less readily, or not at all. Therefore there must be in the stigmata substances with special influences inducing the germination of the pollen of the same plant, and preventing it in any foreign pollen."

LOUIS WAIN'S ANNUAL. — We note that Messrs. A. TREHERNE & Co., 3, Agar Street, W.C., have again this season published *Louis Wain's Annual*, in which the well-known draughtsman gives us many pictures of his favourite cats. In semi-human guise, we have cat-tragedies, cat-comedies, and cat-farces, each represented by a few strokes with a clever pen. Various contributors have furnished letterpress in prose and verse, but the many pictures are of course the chief attraction offered by this amusing publication.

ANTHURIUM HYBRIDUM.—Our Dutch contemporary, *Floralia*, publishes in its issue for Oct. 10, a coloured illustration of an Anthurium, with a cordate, ovate, acute, green spathe, with the centre presenting so large a blotch of red that the green margin is relatively small. The spadix is ivory-white.

FRENCH COLONIAL SCHOOLS. — It is a pleasant duty to have to record the appointment of another Kewite to a post of importance. In this instance the fortunate individual is Mr. H. NAVEL, who, after having been educated at the National School of Horticulture at Versailles, and having stayed at Whiteley's nurseries long enough to learn the English languarge, made a stay of twelve months at the Royal Gardens, Kew. He then returned to France, and after spending some months in the "Jardin Colonial" of Vincennes, under the direction of M. J. DYBOWSKI, has recently been appointed *Directeur des Cultures de l'Institut Colonial de Nantes*, a post lately created by the French Government for the development of the instruction and also for the rearing of economic plants useful to intending planters in the French colonies. Our best wishes to the new director who, during part of his stay in England, occupied the position of Vice-President of that useful institution the Société Française d'Horticulture de Londres, which has done so much during the last twelve years on behalf of the young French gardeners who have resided in this country, and the few English gardeners who have sought its help and support to procure for them suitable situations on the continent. It is a society to which every English gardener, having even a small knowledge of French, might well belong.

EXPERIMENTS IN GRAFTING.—The author (R. H. BIFFEN), was successful in grafting the following plants:—1, Varieties of Beta vulgaris, Sutton's Mammoth Long Red, Sutton's Yellow Globe, Sutton's Tankard, the Kleinwanz-lebener Sugar-Beet, and the Crimson Beet. 2, Tropæolum majus, and T. canariense. 3, Varieties of Radishes (Raphanus raphanistrum). 4, Brassicas, Kale on Drumhead Cabbage, Broccoli on Cabbage, Brussels Sprout on Cabbage, Kohl-Rabi on Kale, and *vice versâ* in each case. 5, Leguminosæ, Trifolium repens on T. pratense and T. hybridum, T. pratense on T. repens and T. hybridum, and T. hybridum on T. repens and T. pratense, Medicago sativa on Trifolium pratense, and T. pratense on Anthyllis vulneraria. In no case was there any visible sign that scion and stock affected one another. The author confirms DANIELS' results (*Ann. Sci. Nat.*, 1898, p. 1), that the effect of grafting is often to dwarf the plants, to retard their flowering season, and in some cases to render them more liable to the attacks of animal pests. In a series of experiments with Potatos (Solanum tuberosum), indication of a mutual effect between scion and stock was observed. A variety of tubers, A, was grafted on another variety B, and similarly B on A. The resulting crops consisted of tubers of the types A and B, and also of tubers of which one end (the distal) resembled A, whilst the other (proximal) end resembled B. Such composite tubers have long been recognised as typical "graft-hybrids," but it must be remembered that if divided transversely, each half is indistinguishable from one of its parents, and that the tuber itself shows all the characteristics of its parent, and not only certain dominant ones; hence the graft-hybrid is not comparable with the sexually produced hybrid. *Vines* (*Oxford*). "*Botanisches Centralblatt*," *Bd. xc., No.* 15, *p.* 408.

AGRI-HORTICULTURAL SOCIETY OF MADRAS.—The Annual Report dated March, 1902, contains a report on the progress of the society and its garden. Among the plants distributed among the members is Congea tomentosa var. azurea, a trailing Burmese Verbenaceous plant, little known in English gardens.

GUAVAS.—In the *Report of the Agricultural Experiment Station of the University of California*, part i., published in 1902, we find an article by Mr. J. BURTT DAVY on the cultivated Guavas, and their botanical differences. Our colonial brethren will do well to consult this article. The cultivated species referred to are: 1, Psidium guayava, with three varieties, sapidissimum, pyriferum, and pomiferum; 2, P. polycarpon; 3, P. araca; 4, P. guianense; 5, P. Cattleyanum, the Strawberry-Guava, with a variety lucidum. Other less known species are mentioned by name. The distinguishing characteristics lie in the four-angled, two-angled, or cylindrical stems, as well as in the form and colour of the fruit.

BRITISH GARDENERS IN THE STATES.—It is curious, and in some senses satisfactory, to read the record of certain American horticulturists who were called on to give evidence in an important trial. They included Mr. WALSH, formerly a gardener with Sir WATKIN WILLIAMS WYNN, and elsewhere, and known as the raiser of various Roses of great merit; Mr. FARQUHAR, formerly in the service of the Royal Horticultural Society

the head of the firm of R. & J. FARQUHAR & Co.; Mr. ROBERT CAMERON, head gardener at Harvard Botanical Garden, an old Kewite; Mr. WILLIAM CRAIG, who was at Levens Hall, Westmorland, and other places, and now Superintendent of Mrs. AMES' gardens at North Easton; and Mr. LAWRENCE COTTER, formerly of Lakelands, and Fota, near Cork. Of course, we might cite very many more instances of men occupying the highest positions in American horticulture, who laid the foundations of their fame and success in the old country. We are sorry to lose them, and sorry they are not sheltered by the Union Jack, but they seem to thrive under the Stars and Stripes, and long may they continue to do so.

MUSA RELIGIOSA.—This species was introduced into France some years ago, having been brought from the Congo by M. DYBOWSKI. M. DYBOWSKI becoming the Director of the Jardin Colonial at Noyent-sur-Marne did not fail to grow this plant, which has also been introduced by MM. VILMORIN, ANDRIEUX & Co. Botanically speaking, the species is very distinct and curious, the bulb being full of starch; the fruits are dry, and not eatable. The foliage is full and handsome, like that of Musa Ensete, but it easily gets rolled round, and so deteriorates in appearance. The plant flowered for the first time in France in the Colonial Garden at Noyent, and an inflorescence on a sturdy stem was exhibited at a meeting on October 23 of the Société Nationale d'Horticulture.

TEXAS STATE FLOWER.—The Buffalo Clover, Lupinus texensis, has been adopted as the floral badge of the State of Texas. The flowers are of a rich blue, covering the prairies in spring, and filling the air with delicious fragrance.

"PACIFIC FLORIST."—This newly established magazine, published at San Francisco, is issued as a journal of information for florists, nurserymen, and fruit-growers. From it we learn that Dr. SWINGLE has been appointed by the United States Department of Agriculture to investigate Fig-culture in Italy, and to transmit specimen trees to the United States, and especially to California.

A FINE SPECIMEN CACTUS.—A correspondent informs us that at the present date there is in Aswarby Park Gardens, Lincolnshire, a plant of Epiphyllum truncatum, growing in a 9-inch pot, carrying over 200 blooms. This plant has received no special treatment.

THE RUBBER INDUSTRY.—In Ceylon, and in the Straits Settlements, large plantations of Para rubber (Hevea brasiliensis) have been made by private enterprise. The Government of India now propose to plant 10,000 acres in Burmah with the same tree, a proceeding viewed with dismay by the private growers in the colonies aforesaid. The Secretary for the Colonies has been memorialised on the subject, but the demand for rubber is so great that it is hardly likely that steps will be taken to limit the output in any way.

THE USEFULNESS OF BOTANIC STATIONS.—In the last number of the *Agricultural News*, issued by the Imperial Department of Agriculture for the West Indies, a paragraph under the above head draws attention to the list of plants distributed by the Botanic Station, Dominica, during the year ending March 31 last. The writer says this branch of the work of a botanic station is apt to be overlooked by the casual visitor, though it is extremely important in promoting the agricultural welfare of the West Indies. It makes very little show, and yet demands an enormous expenditure of time on the part of the most skilled members of the station staff. The nurseries so laboriously filled during the months of preparation with plants raised from seeds and cuttings are rapidly emptied at the planting season, and all the work has to be commenced afresh. The total number of economic plants distributed from the Dominica Station during the last season amounted to 60,500, in addition to large quantities of seeds, Pine-suckers, Onion-sets, &c. Amongst the more important items were 37,000 Limes, and 725 of the new spineless variety; 12,000 Cacao-plants, over 1000 Nutmeg-plants, 3000 Sour Orange-plants for stock, and some 600 budded Oranges; besides which, of special importance were 450 rubber-plants, for the cultivation of which Dominica seems well adapted. It will be agreed that these items go far to justify the existence of the West India Botanic Stations.

BERKSHIRE SCHOOL GARDENS. — In March of the current year school gardens were established in a number of villages in Berkshire, and, despite a rather unfavourable year from a weather point of view, these have all proved a signal success. There was a keen competition for the prizes offered for the best gardens by the Technical Education Committee of the Berks County Council. The judge's ruling resulted in the first prize going to Aldermaston, the second to Ardington, and the third to Faringdon. Mr. KEYSER kindly entertained the boys of Aldermaston to tea on the evening of the 17th inst., when the prizes were presented by Mrs. KEYSER. Each of the prize-winners was greeted with a few cheery words of welcome and encouragement. Both Mr. and Mrs. KEYSER take the greatest interest in the movement, which, assisted by such practical encouragement, bids fair to develop considerably in the near future.

BECKENHAM HORTICULTURAL.—There was a crowded meeting on Friday, November 21, to hear Mr. M. E. MILLS, gr. at Coombe House, Croydon, read a paper on "The Cultivation of the Japanese Chrysanthemum for Exhibition." Mr. WILLIAM WEEKS, late Hon. Secretary of the Bromley and District Chrysanthemum Society, presided. A discussion followed the reading of the paper. Some fine exhibition blooms were staged by Mr. ROBERTSON, gr. at "Winterdine," and Mr. LANGFORD, gr. at Cedars Lawn, to each of which a Certificate of Merit was awarded.

ROYAL DUBLIN SOCIETY.—Prof. T. JOHNSON, D.Sc., F.L.S., read a paper on "Phellomyces sclerotiophorus, Frank," a fungus of unknown affinities, which causes a form of scab in Potato tubers and, in extreme cases, a dry rot. The author first observed the fungus in several Potato varieties grown in the west and other parts of Ireland, in the autumn of 1901. Phellomyces causes the formation of discoloured patches in the skin of the tuber, in the midst of which are generally present the minute sclerotia, 0·1 mm. in diameter, just recognisable, in washed tubers, with the naked eye. In mild attacks, the fungus simply makes the tuber unsightly; in more severe cases it strips off layer after layer of the protecting skin of the tuber, and may ultimately penetrate through the skin into the flesh of the tuber, killing the protoplasm, sending the mycelial hyphæ between and through the cells, and boring into the starch grains. Both in appearance and action, Phellomyces is readily distinguishable from Rhizoctonia, an extremely common cause of scab and rot in Potatos. Phellomyces can pass from seed-tubers to the resulting crop, and is communicable from infected ground to healthy tubers grown in it. The author found soaking the diseased tubers in 0·8 per cent solution of formalin for 1½ hour destroyed the fungus control, untreated tubers giving a diseased crop. Three varieties imported from France, planted in Connemara, gave crops showing Sclerotinia, Sclerotiorum, and Phellomyces sclerotiophorus, both unknown in France on the Potato up to the present. Frank first saw the fungus, in various parts of Germ ny, in 1894, and again in succeeding years. The author said he had nothing to add to the account given by Frank of its very imperfectly known life-history. *November* 18, 1902.

CAMBRIDGESHIRE HORTICULTURAL SOCIETY.—At the annual dinner of the Cambridgeshire Horticultural Society, Mr. ARTHUR MATTHEW made the welcome announcement that the Society's recent show was attended by upwards of 3,000 persons. This not only testifies to the increased popularity of the Society, but justifies the retention of the show in the Society's schedule. As the oldest horticultural institution in the county, the Cambridgeshire Horticultural Society has done the best possible service.

CANADIAN FRUITS.—A shipment of Canadian Pears recently arrived at Glasgow, and the following facts with regard to this fruit may be of interest. The shipment turned out, both as regards quality and the price at which the wholesale dealers were able to sell the Pears, much beyond expectation. One large dealer purchased over 300 cases at 3*s.* 9*d.* to 4*s.*, and after keeping them for a couple of weeks he sold every case at 5*s.* to 5*s.* 6*d.* each. These were Duchesse d'Angoulême beginning to colour splendidly. Another dealer, after keeping twenty cases for ten days in a warm Banana-house, disposed of them at from 5*s.* 6*d.* to 6*s.*, and the buyers were well satisfied with the bargain. The dealers generally speak well of the whole consignment. In fact one dealer has expressed the opinion that the shipment in question was very much better than the late French Pears he had been getting. There can be no doubt, looking at the large market in the United Kingdom, especially at this time of the year, for fruit, that future consignments from Canada, if they maintain the quality of that under notice, will meet with a ready sale, and will fetch higher prices than those mentioned above. *Office of High Commisioner for Canada.*

CHERKLEY COURT.—A. DIXON, Esq., most kindly threw open his gardens and glasshouses to the public on the afternoons of Sunday, Nov. 16 and 23. They were visited by some 3,000 persons. There was at that time a fine show of Chrysanthemums, consisting of about 150 varieties. A plant of Victoria Regia had one perfect flower.

THE GARDENERS' ROYAL BENEVOLENT INSTITUTION.—The next annual meeting will be held on January 22, at SIMPSON'S, Strand, at 3 P.M. There will be fifteen candidates elected to the benefits of the Institution, from a list of forty-six applicants. It will be remembered that eleven candidates were placed on the funds several months ago to commemorate the KING'S Coronation, so that the number of accessions for the year will be twenty-six. This liberal policy of the Committee should stir gardeners and their employers to afford the Institution a measure of increased support. They cannot give their means to a more commendable charity. Mr. C. J. INGRAM, the zealous Secretary, will be very glad to receive the names of new subscribers, or of any willing to give a donation.

WOOD & INGRAM AND J. WOOD INGRAM.—An unfortunately confused statement occurred in our last number with reference to these firms. A corrected version is published under the head of "Trade Notice" in our present issue.

PUBLICATIONS RECEIVED.—*The Garden Gazette*, Melbourne, contains views in the Daffodil Show held on September 4.—*The Agricola Club Journal*, a pleasant means of intercommunication between past and present students of the S.E. Agricultural College at Wye. It contains a good portrait of Principal Hall, now of Rothamsted; an account of the formation on the chalk downs of the semblance of a vast crown in commemoration of the accession of King Edward. The Gloucestershire labourer is described as having a rooted aversion to work . . . an inordinate appetite for

cider, and a stupidity surpassing that of the Kent yokel! No wonder an Education Bill is needed.—*Nature Notes*, November.—*Catalogue of Canadian Plants* (Geological Survey of Canada. Robert Bell, M.D., F.R.S.), Part vii., Lichenes and Hepaticæ, by John Macoun.—*Annual Report*, 1901, *Botanic Station, Grenada.* By W. E. Broadway, Curator. "The experiment plots of economic plants at the Botanic Station continue to make satisfactory progress. The general tenour of the Report is favourable."—*Notes from the Botanical School of Trinity College, Dublin.* Among various articles, chiefly of botanical interest, is one on the germination of seeds after exposure to high temperatures.—From the Imperial Department of Agriculture for the West Indies: *Sugar-Cane Experiments in the Leeward Islands*, Report on experiments conducted at Antigua and St. Kitts, 1901-2. Part I. Experiments with varieties of Sugar-Cane, with an Appendix on the Chemical Selection of Sugar-Cane; *Seedling and other Canes in the Leeward Islands; Seedling and other Canes at Barbados.* These three publications are the result of experiments carried on with the object of ascertaining which of the numerous Canes now available are suitable for further trials on a more extended scale on the Sugar estates, with a view to their final acceptance for cultivation in substitution for the kinds of Cane now grown. The experiments have been conducted on seven estates in each of the Islands of Antigua and St. Kitts, and in Barbados, the objects being: 1, to find disease-resistant varieties; 2, to discover a Cane the equal, or perhaps superior to the Bourbon, the cultivation of which has had to be abandoned owing to its susceptibility to fungoid attack. In the results in Antigua, the Bardados seedling "B 208" heads the list. In St. Kitts the same variety also occupies the first place. In 1900 and 1901, B 208 was second and first in position in Antigua and St. Kitts respectively. Moreover, it occupied in that season and the present the first place in the Barbados trials. Mr. Watts recommends this Cane with some degree of confidence, but adds that caution is necessary in the introduction of any new variety of cane. Another variety that stands out prominently is the Demerara seedling, D 95. During the last three years it has occupied a uniformly high position, and is worthy of careful attention at the hands of the sugar-planters of the Leeward Islands.—*Agricultural Bulletin of the Straits and Federated Malay States*, October. Contents: Fruits of the Malay Peninsula (continued), by H. N. Ridley; Improved Method of Marcottage, by C. Curtis; Ramie, Rhea, China Grass, by C. E. Baxendale; Para Rubber, by C. Curtis, &c.—*Materials for a Flora of the Malay Peninsula*, by George King, K.C.I.G., LL.D., F.R.S., Calycifloræ (Nos. 9 to 13 of the series), Index. Calcutta, Royal Botanic Gardens.—From Mr. Evans, Assistant Curator, Botanic Gardens, Aburi, Gold Coast: *Report upon the Botanical Department*, for 1901. Contains a satisfactory account of progress, and lists of specimens distributed and received and collected in the Colony, &c., and of the quantity and value of Cocoa exported thence in 1885, and from 1891 to 1901. The quantity in 1885 was 121 lbs., valued at £6 1*s.*; and in 1901, 2,195,571 lbs, valued at £42,837.—*Bulletin of Miscellaneous Information, Botanical Department, Trinidad.* October. Contents; Timbers and their Rings of Growth, Grafting and Budding Tape, Pitcher Plant as a Plant Protector, &c.—*West Indian Bulletin*, Vol. iii., No. 3. Contents: Brewing Sugars, Sweet Potatos, School Gardens, Cultivation of Oranges, Scale Insects, Volcanic Eruptions.—*Report on Botanic Gardens and Domains, New South Wales*, July, 1902: "The year 1901 is a red-letter year in the history of the Herbarium and Botanical Museum, for new buildings have been erected, and were opened in March. The Botanical Museum is the first museum in Australia strictly botanical in character." Further interesting details of this, and of the new Herbarium, are added. Various improvements in the parks and other grounds are noted, and an allusion is made to the visit of the Duke and Duchess of Cornwall and York. A highly satisfactory record.

HOME CORRESPONDENCE.

THE NEW HORTICULTURAL HALL.—A fear has recently been expressed that the new Horticultural Hall, which the Royal Horticultural Society proposes to erect in Vincent Square, Westminster, plans and elevations of which have been issued to all the Fellows, will not be large enough to accommodate the National Rose Society, or the National Chrysanthemum Society. I do not understand that it is in any way obligatory on the part of the Royal Horticultural Society that it should find a hall capable of accommodating the large annual exhibitions of these two societies. Did it do so, the cost of erection would be nearly doubled. What the Council has to do is to find a building that shall very comfortably accommodate the largest of the average meetings of the Society, such as may be the Auricula, Carnation, or Dahlia societies' meetings, or some others that are very full. In providing a hall fully half as large again as is the Drill Hall, the diversity of area being 10,650 ft. superficial, as compared with but 7,000 ft. superficial, the Council will be making ample provision to satisfy all reasonable needs; and when to that area is added that of the two annexes, viz., 2,256 ft., or a total in all of 12,906 ft., it is evident that the area of the present Drill Hall will be nearly doubled. Societies like the N.R.S. and the N.C.S., which are so largely dependent on gate-money for existence, would not care to go to the new hall with their exhibitions. It is satisfactory to learn that the new hall is to be well warmed, as that will enable the winter shows to be really enjoyed. The glass roof of the new hall will in the summer need shading material, and it is hoped there will be ample provision for ventilation. The side entrance will be a great boon to exhibitors, and facilitate loading and unloading without interfering with street traffic. Altogether, the new hall should present a metropolitan home worthy of the Royal Horticultural Society. *A. D.*

—— Now that we have an opportunity of judging of the Hall and associated offices by a pictorial representation, it cannot be said that this appeals to us, in these days of architectural taste, as worthy either of its object or the Society which will be housed therein. So far I have heard not a single expression of admiration, while on the other hand, those of condemnation are not far to seek. So far as I can gather, the usual course adopted with such erections has not been pursued. As a rule, when a building of this class is in contemplation, competitive plans and elevations are publicly invited, and as a result, numerous architects assume the risk of preparing such in accordance with the specification provided and the area available, and in this way the building committee have an opportunity of selection without any great extra outlay being involved. The competitive plans in such case can also be exhibited, and an opportunity is thus afforded for judicious criticism, by which nothing can be lost and much may be gained. From the publication however of the plans and pictorial elevations, I presume that they have been definitely accepted and that it is now too late to modify them. Something however might surely be done to remedy the unsightly plainness of the hall-roof by some relief, say in the shape of a longitudinal central elevation, affording ventilation. Without some such provision, the temperature during the summer months would become oppressive to the visitors and detrimental to the exhibits, the afternoon sun striking directly upon the glass. A timber roof to the Lindley Library is also as pointed out by you, a mistake, involving a fire risk which should be avoided at all costs, since no money would cover the irreparable loss which its destruction would involve. As there is still plenty of time to modify such details as these, and possibly others which may be pointed out, I strongly advise the building committee to take these suggestions into consideration and see what can be done to meet them. *Correspondent.*

KAINIT AS A MANURE FOR ONIONS. — The results from the use of manures rich in potash, given on p. 341 of the *Gardeners' Chronicle*, are interesting, as showing that such manure affords satisfactory results. For several years past I have used kainit alone for this crop, with very good results, but the returns have never been so good as this season's crop. I have used kainit when preparing the ground for seed sowing, affording it a light sprinkling. This year I sowed seed in thirty-nine drills drawn at 1 foot apart, 82 feet long. The crop of bulbs was a very even one, and each bulb filled the space allotted it when the crop was thinned; when lifting the crop, a sample row gave a weight of 85 lb., which taken as the average weight of the rows, gives a total of 29 cwt. 31 lb. The bulbs averaged half a pound apiece. The varieties grown were Veitch's Maincrop and Selected Globe, the first named being the heavier bulb. I have had good crops of Onions in previous years, but none so heavy as this year, which I attribute chiefly to the heavier rainfall in the summer months, which enabled the plants to obtain the fullest benefit from the kainit. No special preparation was given the land, and the only manure was exhausted hot-bed materials from forcing frames, chiefly tree-leaves. No other artificial manure was used, and only one application of kainit. I find that by the use of kainit the Onions are very solid, which means longer keeping. The soil at Poltimore is a heavy loam, which carries heavy crops when kainit or basic slag are applied; the last-named appears to give better results than superphosphate. My experience from the use of these manures proves that when judiciously applied to soils lacking them, the results are very beneficial. *T. H. Slade, Poltimore.*

PLANTING PEACH-TREES IN FORCING-HOUSES. —Concerning the planting of Peach-trees in houses in the manner described in the last issue of the *Gardeners' Chronicle*, we have here houses planted in this manner, and I find it to answer, the trees always carrying heavy crops of high-coloured fruits, for they get the full benefit of sunlight on both sides of the trees. The trees trained on the back wall are more conveniently attended to than is usual in houses planted in the usual style. The Peach-houses at this place are 40 feet long, 18 feet wide, 18 feet high at the back, and 7 feet at the front, and the front-lights are 4 feet high, and stand on brickwork 3 feet high. There are three large trees on the back walls, and eight short rows running across the houses, besides the two ends in each house; the houses are lean-to's, and face full south. *C. Best, gr., Norton Court, Bury St. Edmunds.*

THE GARDENING CHARITIES. — Seeing the announcement in the last issue of the *Gardeners' Chronicle* (p. 379), of the concert which Mr. A. J. Brown is again organising in aid of the Gardeners' Royal Benevolent Institution, I should like to assure him that his efforts are appreciated by all well-wishers of the charity. What an example it is for any one to emulate, who is in a position to do so! I was pleased when at the Bristol show last week, to see the enthusiasm of a number of ladies in charge of a stall of plants, flowers, &c., there arranged by the committee in aid of the two gardening charities. The stall was given a most prominent place with conspicuous notices of the object for which the proceeds were to be devoted. This is an example that might be followed at more of the many exhibitions in the country. The energetic secretary, Mr. W. Ellis Groves, finds time to send out appeals for flowers and other garden produce, a copy of which I enclose. [In every way a commendable one. Ed.]. My observations whilst near the stall led me to conclude that the grand show of cut Chrysanthemums gave visitors a desire to take away samples of the big blooms with them. The stall was well stocked with these, and with plants, Violets, and fruit. It occurred to me what a splendid use could thus be made of the surplus blooms brought by exhibitors. *T. T.*

APPLICATIONS FOR GARDENERS SITUATIONS. —Seeing in last week's issue of the *Gardeners' Chronicle* your correspondent, "A. D.," drawing attention to the statement by a lady to the effect that she had received over 1,000 applications for a gardener's situation, the following views of mine may be of interest. It is perfectly astounding to hear of such a thing as a thousand applicants for one place. Doubtless many of the gardeners were in situations at the time, but for some reason were anxious for a change. One thing is certain, that employers when advertising do not afford sufficient particulars to enable a gardener to judge whether the situation is that which he requires or not. In most cases they will not state what wages they are prepared to give, nor, by having replies addressed to the offices of the paper, do they disclose the locality for which the man is wanted, and these are causes which tend to greatly increase the number of applicants when a vacancy is advertised What is the cause of the existing state of the gardeners' labour market? It cannot be that employers are taking less interest than hitherto in horticultural matters, judging from the increase in the number of new Fellows elected to the Royal Horticultural Society. Employers are in many cases reducing the expenses of the gardens, and gardeners have to do the best they can

with a greatly reduced staff. Then gardeners seem to be engaged at a lower salary, irrespective of abilities. Your correspondent asks, "Are we making gardeners too fast?" Most gardeners say they cannot get boys and lads to keep to the garden now, partly because it is not lively enough for them, partly because they can earn more money at other trades. Such being the case, it would seem as though in time to come this disinclination to take up the business of gardener should go far to mitigate the evil. It is to the present, however, that we must turn our attention if we would remedy the existing distress, more especially since the thousands of men who are being brought from South Africa requiring employment bids fair to make matters worse for some time. Why are gardeners so frequently changing or anxious to change their situations? Do employers treat them fairly and put a sufficient value on their services, and remunerate them accordingly? Is their social position on a level with the other servants, such as the coachman? The answer to the question, "Are women from colleges taking positions formerly held by men?" is decidedly No! and they never will. In the first place, it is an impossibility for a woman ever to become a gardener in the proper sense of the term; and secondly, neither can they by entering a college for two or three years obtain sufficient experience to qualify them for the post of head gardener. The business is never entirely learned, and the best men are always acquiring knowledge. But I fear that with many employers qualifications are not so much thought of as formerly; it is now more a matter of wages than anything else. The chief cause of the whole trouble briefly put is this: there is no means of preventing a man obtaining a gardener's situation whether he has experience or not, and as a consequence expostmen, railway porters, and many others obtain situations as labourer or oddman, remaining for a year or two, obtaining a character with which, and other influences, they obtain a post as head gardener, and often obtain in time places where three or four men are employed in the garden. This is not just on the part of employers. In conclusion, I would point out that the ideas of your correspondent, "J. D. G.," on "Gardeners and their Employers," in your issue of Oct. 18, if carried out would do more than anything else to remedy this evil, and I fully agree with him, that if rightly managed and well advertised, they would in time meet with general approval. *E. S. J. T.*

VINCA ELEGANTISSIMA AS A POT PLANT.—This hardy variegated Periwinkle, which is so useful for planting in odd corners in the garden, makes a nice plant for pots for the decoration of the house. I lately saw some specimens 6 feet high, of a pyramidal form, that were very attractive decorative objects. *E. Sandford.*

THE FERTILISATION OF THE SWEET PEA.—For some time I have been trying to get a yellow Sweet Pea by crossing the garden variety known as "Primrose" with the annual yellow species, Lathyrus luteus. Last year I saved eighteen seeds, which were sown this spring with the following results: twelve of them grew a strong haulm, which dangled over a wall 7 feet high, and the blossoms were of the most delicate flesh colour, the wings and keel being brighter than the standards. Four were of the Primrose shade of white, one was like Boreatton, and one produced no flowers whatever although it grew a strong haulm. Not one resembled the male parent. I also crossed them the other way round, but only managed to save two seeds, which are still with the dry pods. Lathyrus luteus was sent me from the Carpathian Mountains. It bears many of the characteristics of our own Sweet Pea, but is much weaker in growth the first year, and almost strangled itself with tendrils. This year, however, upon richer soil it became much stronger, and showed the benefit of one year's cultivation, but the flowers did not increase in the same degree as the foliage, they are of a pure yellow colour, very much like those of Cytisus racemosus, but without scent. I found it was no use waiting for the flowers of the Sweet Pea to develop before operating, as the organs have practically completed their duty when they reach that stage, so I opened the buds and cut the anthers out. It was then found that unless this operation is done at a certain stage, the flower-head withers away in a few days. On several occasions an insect, somewhat midway between a bee and gadfly, was noticed busily occupied in getting honey from the fully developed flowers; its lower parts were smothered with pollen, and when it alighted on the wings of the flower, its weight brought the stigma out of the sheath, when it commenced working its hind legs up and down mostly on the feathery side of that organ. I have saved seeds from these particular flower-heads, and will sow them separately in the coming spring with the others. This experience is that of an amateur in these matters [but of much interest nevertheless. ED.] *Donald McDonald.*

GARDENERS' ABILITIES.—Your correspondent "T. P.," in the issue of November 22, writing about the Co-operative Company for Gardeners, has not quite seen both sides of the question. A few men that I have come in contact with, and heard of from good men, the one a man waiting for a head gardener's place, asked me if Ampelopsis cuttings were intended for grafting purposes? I observe he is back again. Another was put to stake a house of Richardias; he carried out the task by putting the stakes through the tubers; and another expected to keep up the heat in the houses with the ash-pit choked with ashes, and consequently no draught. I believe that gardeners like these do much harm to the prospects of many good men, as they often spend money with no good result, a fatal weakness with an employer who has made his money in business. Another thing is, that some gardeners are always on the move—cannot see the why or wherefore of anything easily. The least time necessary to comprehend the theory and practice in even simple matters is two years, and that only with the closest attention. I think that what I have stated applies more to the intermediate state between the gardener of the old school and the modern gardener, who must take an interest in his work to get on. As was stated in the Prince of Wales' speech on his return from his colonial tour, "We must wake up." *A. D. Berney.*

LEAF-MOULD has been bandied about like a shuttlecock, now up, now down; praised to the skies, condemned to perdition. What does it mean? Simply this: leaf-mould, as ordinarily understood, usually means diseased leaves, no matter if they have rotted to the consistence of putty! If experienced horticulturists had pointed out at first that in Orchid-culture leaf-mould meant fallen leaves, many plants that are now defunct would be with us still. In your latest issue, I am pleased to find one of our leading growers giving practical advice, defining leaf-mould (as it should be for Orchid-culture), and a most important point, how to use it. Still, with all due deference to their undoubted standing, I am convinced they can do better, viz., by the use of peat. From a scientific point of view, I ask why is it used? It cannot be as food, for when it commences to decay, is it not considered sour, and discarded? To be brief, I may say that it can only be of value as a mechanical agent in keeping the leaf-mould open, and acting as anchorage for roots, but only so long as it lasts. This brings me to the vital question still open. Admitted, leaves appear to be the natural food, there is still required an indestructible medium for holding that food in position, and also forming anchorage for roots. This desideratum I still claim to possess in the use of "Flexible Carbon Fibre," which after any number of years will still be intact, and the roots found clinging to it for support. I am sending you sample of leaves, fibre, &c., just as I have found to be the best proportions to secure good results, and shall be pleased to forward similar sample to anyone really interested in this matter. In sample sent please notice that the leaves are simply rubbed into a springy mass, not passed through a sieve, for if too fine they lie too close, and are apt to get sodden, a great and common danger, especially where leaf-mould is mostly alone. Possibly I may have to be content as one crying in the wilderness. Still, having gained some extensive experience as an "Orchid Vet." (so my friends dub me), I can speak from actual experience. Within the last three years I have received hundreds of plants to "kill or cure," the maimed, the halt, and the blind, and many half worried or infested with vermin of all kinds, and nearly without exception I have been rewarded by bringing them back to health and vigour—a labour of love, yet well repaid. *E. W. Cooper.*

PACKING OF GRAPES.—The forcible and practical reply of Mr. George Monro on p. 341, will be read with special interest, not only by the trade, but by Grape-growers generally. His handling in bulk is enormous, and still the supply is increasing. Again, no one has the true interests of the grower more at heart, whilst this question of packing means also much to himself as a salesman. It is very simple for a grower to cut and pack to his own satisfaction at home; too often, however, the end of the journey reveals a very different state of things. As a market grower for over a quarter of a century, being also a prize Grape packer, I have always an eye to any point that pertains to this important branch of the Grape industry. Could all growers deliver direct to the salesman in their own conveyances, no better system of packing could be found than the use of "shallows" enclosed in the usual "flats." But then comes the question of the salesman consigning goods to his customers, most likely involving a railway journey. It will be generally understood that the shallow or baby basket is the best for laying in, presenting the most perfect face of the bunches. As a fact, I see weekly on our market whole consignments so packed and delivered, which are equal to any on our exhibition stands. Now, handy as the handles may be, and skilful as the packer may be, there is far more risk of rubbing in these. Then comes the question of what kind of package should be used, and I am in favour of the packing-case, with four, eight, or twelve handles enclosed. I do not, however, forget there are many of the best Grapes sent to market in shallows, stood in boxes with hinged lids, and hand-holes in end for handling. These are good, and if we could only get sufficient care exercised in transit and handling, all would be well. Herein lies the difficulty—Grapes to command top prices must not only be of the best quality and well grown, but they must also be presented to the buyer in perfect condition. So far, I have not met with anything that will ensure an unblemished bunch or basket at the end of its journey. *S. C.*

Obituary.

ERNST SCHMIDT.—The death is announced of Herr Ernst Schmidt, one of the founders of the well-known firm of Haage & Schmidt, at Erfurt. Herr Schmidt had every opportunity of obtaining a thorough knowledge of his business, and had worked for Messrs. Vilmorin in Paris, Yamin & Durand at Bourg-la-Reine, near Paris; E. G. Henderson & Son in London, and was also for a time at Kew. In the interests of horticulture Herr Schmidt had travelled much in France, Belgium, England, Russia, Italy, Algiers, and other countries. Owing to ill-health, Herr Schmidt retired from active business in 1889, and devoted himself diligently to pomology. He was greatly interested in astronomy and meteorology, and was a chess-player of no mean skill. His death occurred at Dresden, November 3, in consequence of an operation. An obituary notice with a portrait, and a full account of his life's work, are given in Möller's *Deutsche Gartner-Zeitung* of November 15, 1902.

ENQUIRY.

"GUARUMBO" TREE.—Can any reader oblige us by giving the authentic name of a Mexican tree so named?

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

NOVEMBER 18.—*Present:* Dr. M. T. Masters, F.R.S. (in the Chair); Messrs. Douglas, Odell, Saunders, Bowles, Worsdell, Holmes, Veitch, Baker, Druery, Hooper, and Worsley; Drs. Rendle and Cooke; Prof. Boulger; Revs. W. Wilks and G. Henslow, Hon. Sec.

Dr. M. C. Cooke, V.M.H.—Dr. MASTERS rose to offer in the name of the Committee their hearty congratulations and goodwill to Dr. M. C. Cooke on having been presented with the Society's Medal. Dr. Cooke in reply observed, in thanking the Committee, that he had no anticipation of the honour, as it was quite unexpected, since whatever he had done was always *con amore*.

Malformed Cypripedium.—Dr. MASTERS reported on the drawing submitted at a previous meeting by Mr. Saunders. The flower is an illustration of a common tendency in Orchids to produce their flower-segments

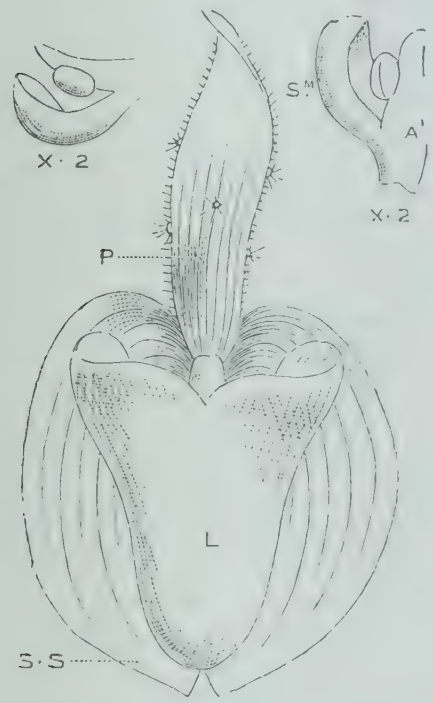


FIG. 136.—CYPRIPEDIUM BARBATUM FLOWER, WITH PARTS OF THE FLOWER ARRANGED IN GROUPS OF TWO.

SS. Two Sepals conjoined. P. Lateral petal displaced. L. Lip. Sm. Staminode. Al. Stamen.

in whorls of two. The flower was similar to that shown in fig. 136 wherein the two lower sepals were confluent into a single segment placed anteriorly, and forming one of a pair with one of the ordinarily lateral petals, here displaced so as to become median and posterior. The other lateral petal is absent. Numerous malformations in the genus Cypripedium are given in Dr. Masters' paper on the subject in the *Journal of the Linnean Society*, vol. xxii. (1887), p. 402, and "Orchids, Single and Double," *Gardeners' Chronicle*, May 5, 1885.

Stenoglottis longifolia.—Mr. ODELL brought spikes of this S. African Orchid with fasciated stems The flowers are very small, pale rose, and spotted with crimson. He observed that the method of cultivation was similar to that of Disas in a cool-house. Mr. Henslow remarked that D. grandiflora, "The Glory of Table Mountain," does not seed freely there, but propagates itself by stolons underground.

Lily fasciated.—Mr. H. SIMPSON, Wandsworth, sent a fine specimen of Lilium auratum in this condition.

Acorns striped.—Rev. M. C. H. BIRD, of Brunstead Rectory, Stalham, Norwich, sent specimens of Acorns peculiar to one tree in the above locality, a variety of the common Oak: they are very small, and transversely striped. Q. nigra, of the U.S.A., has similar striping, but the cause is unknown.

Ruellia cleistogamous, form of.—Mr. H. C. DAVIDSON, Great Totham, Witham, Essex, called attention to this hitherto unknown peculiarity. The Ruellias referred to should have borne "large, blue flowers;" but the flowers borne were white, and so small that they could hardly be seen unless they were looked for. The envelope was early pushed off, like that of Esch scholtzia, but the pods swelled and produced seeds. One of the plants carrying the tiny white flowers and also ripened seed-pods, has since produced a single blue flower.

Fertility of Hybrids.—Mr. CH. C. HURST sent the following communication:—"In the report of the last meeting of the above Committee in the *Gardeners' Chronicle*, 1902, ii., page 331, under the heading "Vigour in Hybrids," the following statement was made:—"It was observed that hybrids of Cypripedium Fairieanum will not cross." According to the records, this statement can hardly be accurate, because on sixteen distinct occasions hybrids of C. Fairieanum have produced offspring which have duly flowered. The following is a list of the crosses recorded (for detailed references see the forthcoming *Orchid Stud Book*). (1) Paphiopedilum × vexillarium, a hybrid between P. barbatum and P. Fairrieanum, has been successfully crossed with P. barbatum, P. bellatulum, P. hirsutissimum, P. Spicerianum, P. insigne, P. Stonei, P. × calophyllum, P. × Io, and P. × Williamsianum. (2) P. × Arthurianum, a hybrid between P. insigne and P. Fairieanum, has been successfully crossed with P. Argus, P. Spicerianum, and P. × Leeanum. (3) P. × Niobe, a hybrid between P. Spicerianum and P. Fairieanum, has been successfully crossed with P. insigne, P. Spicerianum, P. × orphanum and P. × javanico superbiens. We may therefore conclude that whatever degree of fertility may be peculiar to hybrids of P. Fairieanum, it cannot be said that they are absolutely sterile." Mr. VEITCH quite corroborated Mr. Hurst's observations.

Introduction of fungus pests.—Dr. COOKE made the following observations on this subject:—"Apropos of Mr. Geo. Massee's statement at a recent meeting of the Scientific Committee that a fungus pest, a smut on grasses (Cintractia), was introduced into Britain with a species of Bromus from Patagonia, a similar instance has come to hand as to the introduction of the destructive Apple and Pear scab (Fusicladium dendriticum) into South Australia. This disease was apparently wholly unknown in that colony previous to 1877, when its introduction was attributed to an infected Seckel Pear-tree which was imported from America. This is not improbable, and should serve as a warning to destroy, without reserve, any and all imported plants which give evidence of disease, and to thoroughly disinfect the soil."

Ferns proliferous.—Mr. DRUERY exhibited a pinna of Athyrium filix-fœmina var. plumosa, Druery, showing a profusion of young plants developed from dorsal—i.e., soral, bulbils, which first appear as fleshy excrescences among the sporangia, most of which abort. As a rule, the bulbils only develop into minute excrescences, in which it is extremely difficult to maintain vitality during the winter, owing to the almost immediately subsequent decay of the deciduous fronds; hence only few plants have been raised by this means. This year, however, due probably to the moist season, the bulbils appeared much earlier than usual, and developed fronds which appear in the specimen very clearly on the upper surface. This proliferous trait is inherited from the progenitor, the Axminster plumosa.

Apple Pyriform.—Mrs. BAYLDON of Dawlish sent an Apple resembling a Pear, from a large old tree in an old cottage garden.

Black Hamburgh failing.—Abortive flowering shoots were sent by Mr. G. H. RICKETTS of Cranemoor Lodge, Christchurch, Hants, who observes that "every year the branches promise fairly well, but the Grapes fall, being good for nothing." Failure in root-action, probably waterlogging, was the general opinion of the committee. Mr. S. T. WRIGHT of Chiswick Gardens, to whom they were submitted, reports that, in his opinion, the Vine is "Canon Hall Muscat, a notoriously bad setter, which only succeeds well as a bearer in a few places. I would suggest rooting it out or grafting with a more reliable variety. Black Hamburgh never shows bunches in the form of the specimen sent."

Potatos with tuberous shoots.—Mr. C. OSMAN, Sutton, showed samples of Potatos which had sent out shoots, each of which bore numerous small Potatos. The peculiarity had been figured by Dr. Lindley about the middle of the last century, but it is not so common as super-tuberation or secondary tubers issuing from the main one. This (fig. 137) has been common in certain places this year, apparently due to prolonged degree of warm weather, which causes the Potatos to start into growth, but instead of forming leafy shoots produces tubers. The variety known as The Garden is said to be particularly liable to it.

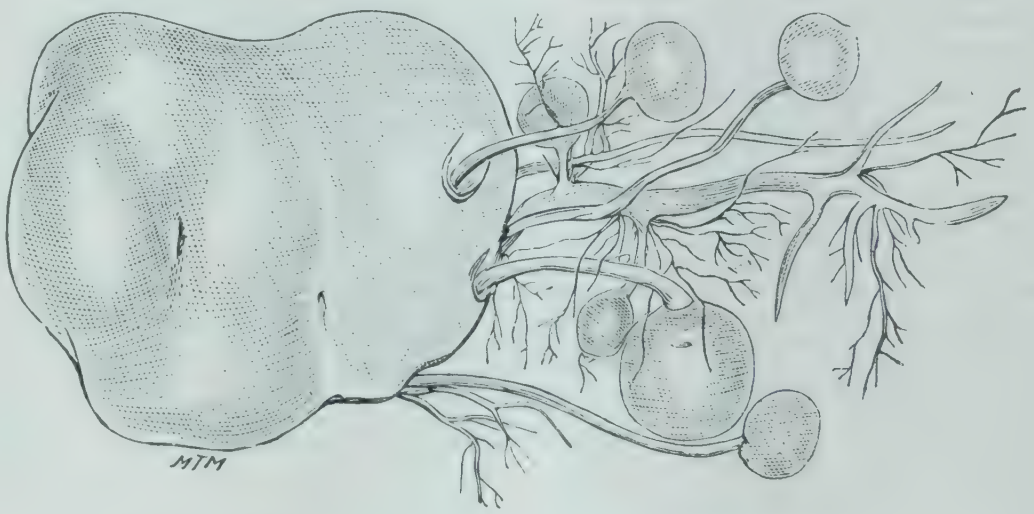


FIG. 137.—SUPER-TUBERATION IN POTATO.

Plant Dyes.—Dr. PLOWRIGHT sent the following communication, together with specimens of the dyes described:—

"*The Common Lark-spur.*—Delphinium Consolida, as the older botanists used to call it, is a plant of considerable interest. The generic name Delphinium, for instance, is taken from Delphis, a dolphin, the similitude being in the flower-buds before they expand. One of the aberrant members of the Ranunculaceæ, it was in the olden times admitted to a place in the English flora on doubtful grounds. 'The expressed juice of the petals, with the addition of a little alum makes a good blue ink,' as Withering tells us in his *Botanical Arrangements* (14th edition). The quantity of juice which can be expressed from the petals is very little; but when they are crushed with a small quantity of water, and alum added, a green liquid is obtained. That it is possible to write with this is evident from the sheet of writing now exhibited; but whether it merits the designation of ink is another matter. The green colour is not due to chlorophyll. It is capable of retaining its colour for more than a year, as is evident from the specimen exhibited; in point of fact, the sentence written with the 1901 ink is rather darker than that written with the 1902 ink. But this green fluid possesses another character of considerable optical interest, it is fluorescent. When viewed by reflected light it is green, as is the case when daylight is transmitted, not only ordinary daylight, but even direct sunlight. When, however, an artificial light is viewed through it, the fluid appears red; the electric light, gas light, or even the flame of a wax vesta match has the same effect. A solution of chlorophyll in alcohol is also fluorescent, but in the reverse way, being green by transmitted, and reddish by reflected light. (1) Indigo red dissolved in

alcohol. This specimen is prepared from wood after the manner described by Prof. M. W. Beyerick, of Delft: 'To an infusion of fresh woad leaves, isatin and hydrochloric acid are added, and the mixture boiled.' It assumes a dark, almost black colour, which is due to the deposition of innumerable acicular crystals of indigo-red, which are readily observable under the microscope. These crystals are insoluble in water, so that if the fluid be filtered they remain on the filter as a black powder; this may be dissolved by alcohol. (2) A red colouring matter soluble in water and in alcohol. Obtained by treating dry woad seed with hot-water and hydrochloric acid. This specimen is an alcoholic solution. This colouring matter is turned green by alkalis, whereby differing from indigo-red. (3) An alcoholic solution of the red colouring matter contained in the flower-heads of Hypericum perforatum. This has been known for a very long time. Linnæus speaks of the Scandinavians colouring the spirituous liquors by it. It is turned bright green by alkalies. (4) The male catkins of the black Poplar crushed with water and hydrochloric acid. (5) Petals of Geranium sylvaticum crushed with alum and water. These two last (5 and 6) are probably the so-called erythrophyll. (6) Petals of Ceptaurea cyanus crushed with alum and water. This is said by the older botanists to yield a 'blue ink; but the mixture thus obtained can hardly be called blue, but rather a dirty chocolate. It has, however, a red fluorescence by transmitted light."

Cladium Mariscus.—Specimens were received from Dr. PLOWRIGHT, who writes:—"These distorted leaves were found upon plants growing on Ashwicken Fen during the past season. Many plants were similarly affected." They had evidently received some check during growth.

Helenium autumnale virescent, &c.—Mr. WORSDELL showed specimens of this not uncommon malformation. The bracts of the involucre were enlarged and subfoliaceous, while the corollas were virescent; but in lieu of the pistils was a minute capitulum surrounded by several brown anthers devoid of pollen. The virescent corollas of the ray florets were very much enlarged and trumpet-shaped, as in Centaureas, but both ray and disc florets had minute capitula in place of the pistil. [Our illustrations (see figs. 138, 139) represent some similar specimens that came under our own observation. ED.]

Crimson Oak Leaves.—Mr. WILKS showed leaves which came from a single tree of a bright crimson colour on both sides, especially on the lower side. It was remarkable that no other trees bore such leaves in the neighbourhood.

ROYAL HORTICULTURAL OF ABERDEEN.

NOVEMBER 15.—The annual general meeting of the members of this Society was held in the Music Hall Buildings, Aberdeen, on the above date. There was a good muster, and Sir Allan Mackenzie, Bart., of Glenmuick, Chairman of Directors, presided. The report stated that although the show this year was favoured with good weather, and the expenses had been kept down as much as possible, the directors regret to have to report that while the income for the year amounts to £127 2*s.* 5*d.*, the expenditure has been £140 9*s.* 6*d.*, leaving a deficit of £13 7*s.* 1*d.*, practically the same as last year, when the deficiency was £13 12*s.* 8*d.* This small adverse balance is more than explained by the fact that, contrary to expectation, although everything was done to make the show popular, the attendance was not so large this year as last, there being a decrease of £28 under this heading, compared with the sum drawn for admission last year. The directors, however, have pleasure in drawing the attention of the members to the fact that, besides the £320 of legacies belonging to the Society, which are invested in bonds and feu-duties, the Society has £164 19*s.* 9*d.* at its credit to carry forward to next season.

In moving the adoption of the annual report and accounts, the Chairman said he was glad to see such a splendid meeting, and took that opportunity to thank the members for the honour they had conferred upon him in electing him to the office of Chairman for the past year. He wished also to compliment the exhibitors on the excellence of the show from a horticultural point of view, especially considering the summer, or rather want of summer, which had been experienced. Sir Allan then animadverted on the action of the Aberdeen Town Council in placing obstacles in the way of the progress of the Society by refusing the use of the Duthie Public Park for more than one day in which to hold the annual show. He trusted that the new Council recently elected would be more charitably disposed towards the Society than their predecessors had been, and would welcome the Society to the Duthie Park, as in former years. After paying a high compliment to Mr. Rennett, the courteous and energetic secretary, Sir Allan concluded by formally moving the adoption of the report and accounts. Mr. D. Edwards seconded, and the motion was unanimously agreed to.

ELECTION OF OFFICE-BEARERS.

The Earl of Aberdeen was elected to the chairmanship, and a very hearty vote of thanks was accorded to Sir Allan Mackenzie for his services as Chairman of the Society. Mr. Samuel Pope was elected Vice-chairman for the ensuing year.

Acting Directors for the ensuing year were then elected by ballot. The auditors, Messrs. William Reid, and William Wyllie, were re-appointed, as also was the Secretary, Mr. J. B. Rennett, advocate and C.A. The usual vote of thanks closed the meeting.

GRAND YORKSHIRE GALA FLORAL AND MUSICAL EXHIBITION.

NOVEMBER 17.—Under the presidency of Alderman Sir C. Milward, a meeting of the council of the Grand Yorkshire Gala was held at Harker's Hotel last night. The balance-sheet showed that there was a loss on last June's gala of £634 8*s.* 4*d.*, due to the inclement weather which prevailed at the time. This is the greatest loss which the society has ever sustained. The next business was the appointment of a secretary in succession to C. W. Simmons, who retired on the ground of pressure of other business, and Mr. Fred Arey, of 3, New Street, was elected to that position.

In recognition of the services of Mr. Simmons during the fourteen years he was secretary, the Council elected him a life member. Votes of thanks were accorded the ex-Lord Mayor, president for the past year; to Sir C. A. Milward, chairman of committee; Ald. Border, vice-chairman; Ald. Sir J. S. Rymer, treasurer; and to Messrs. Harper (N.E.R.), and Messrs. Backhouse, Webb, and Sutton, for donations. It may be stated that notwithstanding the loss of the last gala, the Society have still a substantial balance in hand. With regard to next year's fixture, a committee was appointed to arrange dates. A vote of thanks to the chairman concluded the proceedings.

LOUGHBOROUGH AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

NOVEMBER 18.—The fortnightly meeting of the above was held at the Town Hall, Loughborough, on Tuesday evening of the above-named date. Mr. D. Roberts, Hon. Secretary, presided, and there was a good attendance of members.

Mr. F. W. E. Shrivell, F.R.H S., F.L.S., of Thompson's Farm, Hadlow, Kent, gave a lecture upon "The Influence of Nitrogen on Peas and Beans." With the aid of limelight views the lecturer was able to place before his audience some striking results of experiments carried on by the lecturer at his experimental farm at Hadlow. Some interesting slides, showing the cultivation, picking, and drying of Hops, were shown on the screen, illustrating the manipulation of this crop. Mr. Shrivell's remarks were attentively listened to, and a hearty vote of thanks was accorded him at the close of the meeting.

BRISTOL CHRYSANTHEMUM.

NOVEMBER 19, 20.—The annual show was held in Colston Hall. The exhibits were generally remarkable for their good quality, and were more numerous than ever, while the attendance was a record one. Amongst Chrysanthemum blooms, a superb collection of thirty-six Japanese, brought by Mr. VALLIS from Chippenham, was the leading feature, and secured for its exhibitor the Society's Silver Cup, together with a valuable money prize. A magnificent bloom of Madame Carnot in this fine stand also gained for Mr. VALLIS the National Chrysanthemum Society's Silver Medal, given for the best bloom in the show. Groups of Chrysanthemums and other plants were a splendid feature, and Orchids and Ferns were remarkably well shown, as were also fruit and vegetables. The non-competitive exhibits were also a conspicuous feature, and greatly assisted in beautifying the hall. Mr. ELLIS GROVES and his Committee do a good work in having a sale of fruit, flowers, &c., in aid of the Gardeners' Royal Benevolent Institution, and Royal Gardeners' Orphan Fund.

Fruit was staged in great quantities, and in excellent condition, Mr. H. JONES taking 1st honours for a collection of six varieties with good Muscat of Alexandria and Alicante Grapes, Cox's Orange Pippin Apple, Pitmaston Duchess Pear, &c.; Mr. BENFIELD being a good 2nd.

In the Grape classes Mr. CURTIS was placed 1st with fine bunches of Muscat of Alexandria, and won the prize with one of them for the best bunch in the show. Mr. COOTE was 1st with Alicantes; Mr. STRUGNELL 1st for Lady Downes'; Mr. TOWILL 1st for Mrs. Pince; and for any other white variety, Mr. RAKES scored with nicely-finished Golden Champion.

Amongst seven exhibitors of Pears in six varieties, Mr. Bannister, gr. to Mrs. ST. VINCENT AMES, surpassed his rivals with fine clean dishes; Mr. COOPER taking 2nd place; and for four dishes Mr. BANNISTER was again placed 1st.

Mr. RUNNICLES led with six dishes of dessert Apples, followed by Mr. J. H. VIRGO, who was placed 1st for four dishes of dessert varieties; Mr. VIRGO winning for four dishes of culinary Apples.

Vegetables were staged in splendid condition for special prizes offered by Messrs. CARTER & Co., Messrs. GARRAWAY & Co., and Messrs. SUTTON & SONS, Messrs. BASTIN, HALL, BANNISTER, and BENFIELD, being the leading exhibitors.

Cut Blooms of Chrysanthemums.—The class for thirty-six Japanese blooms has been referred to above.

The class for twelve Japanese brought five exhibitors. Mr. Baker, gr. to Dr. J. CROPPER, being 1st; and Mr. Sutton, gr. to W. A. TODD, Esq., 2nd. Six blooms of any yellow Japanese found Mr. RUNNICLES 1st, with a grand stand of J. R. Upton. Six blooms of any white variety brought Mr. DRAKE, of Cardiff, to the front with Madame Carnot.

Eight grand stands were staged in a class for twenty-four incurved varieties. Mr. W. Higgs, gr. to J. B. HANKEY, Esq., who was 1st, had splendidly finished blooms; Mr. DRAKE was 2nd. Mr. STRUGNELL was 1st in a class for twelve incurveds. Mr. STRUGNELL was also 1st with twelve Anemone varieties, Hylacon, Miss Lanton, Owen's Perfection, Sir W. Raleigh, J. Bunyan, &c.; Mr. HOBBS, 2nd.

Groups of Plants.—Mr. MCCULLOCH was a good 1st with a splendidly arranged lot of large flowered plants, having good foliage; Mr. HARFORD, who followed, had a group of dwarfer plants, too flatly arranged, but better finished than was the leading exhibit. Three good groups of Chrysanthemums, blended with ornamental foliage plants and Ferns, were exhibited in a class devoted to them. The best came from Mr. BANNISTER.

Miscellaneous plants, arranged in spaces of 50 square feet, brought four exhibitors, Mr. Curtis, gr. to W. H. DAVIES, Esq., being 1st, with tastefully arranged plants; 2nd, Mr. TATE.

A grand stand of Chrysanthemum blooms, Carnations, and zonal Pelargoniums, was arranged by Mr. GODFREY, of Exmouth; Messrs. HOUSE & SONS exhibited Violets, &c.; Messrs. PARKER & SON, Bristol, arranged a magnificent stand of bouquets and wreaths Messrs. GARRAWAY & Co., Clifton, a large exhibit of Apples, Pears, and Gourds; Messrs. COOLING & SONS, Bath, Apples and Pears; and Mr. WINSTONE, Bristol, floral designs.

NORWICH AND NORFOLK HORTICULTURAL.

NOVEMBER 20, 21, 22.—This is one of the oldest societies in the kingdom, having been established in 1829, and it possesses so much vitality that it can hold three exhibitions each year. It held its Chrysanthemum Show, as is usual, in St. Andrew's Hall, on the above date. The fruit and vegetable exhibits, both remarkably good for the season, were arranged in the Blackfriars Hall, which is ante to the larger hall.

Chrysanthemum plants were fairly good, and in addition there were classes for Begonia Gloire de Lorraine, Cyclamen, Ericas, Orch ds, berried plants, &c., all of which were of a creditable character.

The main interest centred in the cut blooms, and in a new class for six vases of Chrysanthemums, three blooms of each, Mr. G. Baker, gr. to B. E. FLETCHER, Esq., Marlingford Hall, was 1st with a very fine exhibit, his J. E. Clayton, Madame Carnot, and N. C. S. Jubilee, being very fine. Mr. G. W. Mush, gr. to Lord DE RAMSAY, Haverland Hall, was 2nd.

The class for forty-eight cut blooms of Japanese varieties was very keenly contested, the 1st prize went to Mr. F. Hanson, gr. to Sir S. B. CROSSLEY, Bt., M.P., Somerleyton Hall, who staged remarkably fine blooms. Mr. G. H. Smart, gr. to W. R. SEAGO, Esq., Oulton Hall, was 2nd; his bloom of W. R. Church, finely developed, was awarded the Silver Medal of the National Chrysanthemum Society as the premier Japanese bloom in the show.

Incurved blooms were well shown for the season, and among the finest were Madame Ferlat, awarded a Silver Medal of the N.C.S. as the best incurved bloom in the show. The best six incurved of one variety were finely finished C. H. Curtis, from Mr. G. BAKER, Marlingford Hall. The best six blooms of a white Japanese were those of Mrs. J. Lewis, from Mr. G. H. SMART. The best six Japanese of any other colour, Mrs. Mease, from Mr. F. Tilbury, gr. to H. A. CAMPBELL, Esq., Lynford Hall.

Fruit formed a good feature, Mr. W. Allan, gr. to Lord SUFFIELD, Gunton Hall, Norwich, scoring in several leading classes. He was placed 1st for three bunches of Grapes, one of each variety, having Gros Maroc, Lady Downes' and Alicante. Mr. ALLAN was 1st with three bunches of well-finished Alicante; Mr. Sheddick, gr. to the Hon. A. E. FELLOWES, M.P., Honingham Hall, a close 2nd.

Some well-furnished White Muscats were exhibited, Mr. F. TILBURY, Lynford Hall Gardens taking the 1st prize.

The best collection of nine varieties of dessert Apples was shown by Mr. G. H. SMART, who had good examples of leading sorts. With nine dishes of culinary Apples, Mr. G. Davidson, gr. to Capt. B. J. PETRE, Westwich, staged a very fine lot, large, sound, and bright. Pears were very good, especially a collection of six dishes, shown by Mr. W. ALLAN.

Vegetables were numerous and very good; the special prizes offered by Messrs. SUTTON & SONS, of Reading, and Messrs. DANIELS, BROS., Norwich, brought excellent produce.

In the way of miscellaneous exhibits, HOBBIES & Co. (JOHN GREEN), Dereham, staged Chrysanthemums, arranged with commendable taste. Mr. R. HOLMES,

FIG. 138.—A VIRESCENT HELENIUM AUTUMNALE. (SEE P. 404.)

Chrysanthemum specialist, Norwich, had Chrysanthemums in flower, lifted from the open in October, and brought on under cover. Messrs. DANIELS, BROS., had a large table of plants, flowers, fruits, and vegetables. Messrs. ISAAC HOUSE & SON, Westbury-on-Trym, had Violets.

ROYAL BOTANICAL & HORTICULTURAL OF MANCHESTER.

NOVEMBER 20, 21, 22.—The Manchester Chrysanthemum show now ranks among the best in the country, the show held in St. James' Hall, Manchester, being the best ever held under the auspices of the Society. The entries in the twenty-two classes averaged about eight in each class, competition being on the whole keen. Groups of plants are an important feature of the exhibition, and on the recent occasion five entries were sent in. A vast improvement has of late years been made in the arrangement of groups of Chrysanthemums. The groups being set out judiciously in the hall, form as it were a groundwork for the entire exhibition. Miscellaneous exhibits are a strong feature at this show, and cover almost everything that is in season at this time of the year.

His Grace the Duke of WESTMINSTER, Eaton (gr., Mr. Barnes), was on this occasion a prominent exhibitor, sending a magnificent collection of Apples, Pears, and Grapes, to which was awarded a Gold Medal. Manchester people so seldom have an opportunity of seeing nice, fresh, clean fruit, that this exhibit, on a table nearly 40 feet long, came as a delightful surprise to them.

Messrs. DICKSON, BROWN, & TAIT, Manchester, staged a handsome collection of Begonia Gloire de Lorraine and Begonia "Turnford Hall" (Silver Medal).

Messrs. DICKSON & ROBINSON, Manchester, made a display of Cyclamen, Lilies of the Valley, and Begonias, white and red, in addition to which were fine samples of Potatos, Carrots, Onions, and Parsnips (Silver Medal).

Messrs. W. CLIBRAN & SON, Altrincham, had a capital display of seedling Chrysanthemums, double and single, as well as a good lot of their famous Celosia pyramidalis (Silver Medal).

Messrs. H. CANNELL & SONS, Swanley, Kent, brought brightness to the show in their superb varieties of zonal Pelargoniums, staged in fan-shaped bunches, these were the admiration of visitors during the three days (Silver-gilt Medal).

Messrs. CALDWELL, Knutsford, exhibited Bouvardias, Ericas, and Cyclamens.

Messrs. ISAAC HOUSE & SON, Westbury-on-Trym, near Bristol, staged a nice lot of cut Violets (Vote of Thanks).

Mr. GEO. BOYES, Leicester, exhibited a choice lot of Carnation blooms in great variety (Vote of Thanks).

Messrs. W. WELLS & Co., LTD., Surrey, staged a nice lot of Chrysanthemums, single and double, and were awarded a Silver Medal.

ORCHIDS.

Orchids were well represented at the show, the whole of one side of the spacious Hall being devoted to their exhibition.

Messrs. CHARLESWORTH & Co., were awarded a Gold Medal for a large and choice group of plants, which were effectively staged. There were many rare things in this group, and some of the hybrids were worthy of notice, Cattleya × Clarkiæ, a cross between C. bicolor × C. labiata; C. × Germania (C. Schofieldiana × C. × Hardyana), Lælio-Cattleya × Bletchleyensis, C. × Sauvior, Lælio-Cattleya × luminosa, C. × Portia, a cross between C. Bowringiana × C. labiata; Brasso Lælia × Helen, a hybrid between Brassavola Digbyana × Lælia tenebrosa, very distinct; Cypripedium × Baron Schröder is a charming production, its parents being C. Fairieanum × C. œnanthum superbum, is of pleasing form, not too large, keeps a great deal of the character of C. Fairieanum with a dash of the brightness of C. œnanthum (First-class Certificate). Cypripedium × the Kaiser was another notable plant said to be the result of crossing C. insigne var. punctato violacea with C. insigne var. albo marginata; disinterested judges saw a suspicion of C. Charlesworthi in the composition of the flower, but the parentage is vouched to be correct. It is a good flower, with a bold well-marked dorsal sepal (First-class Certificate).

Mr. J. CYPHER, Cheltenham, obtained a Gold Medal for an effective group of Orchids. There were several masses of that brilliant show plant Dendrobium Phalænopsis var. Schröderiana, one large pan of Cypripedium insigne var. Sanderæ, with half-a-dozen flowers of good type; C. insigne var. Sanderiana, C. × fascinator, and many other choice plants.

Messrs. HUGH LOW & Co., Enfield, sent a small choice collection of plants which included good examples of Cypripedium insigne, Harefield Hall var., C. insigne var. Sanderæ, C. × Henry Graves, Lælio-Cattleya × Statteriana (Silver Medal).

Messrs. JOHN COWAN & Co. Ltd., Gateacre, staged a nice group of plants, consisting of good varieties of Cattleya labiata, Odontoglossum crispum, O. grande, Lælia Gouldiana, and Cattleya Schilleriana (Silver Medal).

FIG. 139.—HELENIUM AUTUMNALE WITH STALKED FLORETS, ETC. (SEE P. 404.)

W. DUCKWORTH, Esq., Flixton (gr., Mr. Tindall), staged a group which consisted chiefly of Oncidiums in variety, with Cattleya aurea, showing here and there (Silver Gilt Medal).

Mr. J. ROBSON, Altrincham, staged a group consisting of Cattleya labiata, Oncidiums, and various hybrid Cypripedes (Silver Medal).

Mr. W. HOLMES, Timperley, received a Bronze Medal for a small but choice group of plants. Cypripedium insigne var. aurea, C. × Lawre-concolor, C. × Arthurianum, and C. insigne var. Dorothy, being noticeable.

T. STATTER, Esq., Whitefield (gr., Mr. Johnson), staged for the Orchid Society a charming group of Cypripedes, including several rarities and a fine plant of C. × triumphans (Silver-gilt Medal).

S. GRATRIX, Esq., exhibited Cypripedium × Leeanum var. Corona, a form of considerable size and of a peculiar greenish colour (First-class Certificate). *P. W.*

ABERDEEN CHRYSANTHEMUM.

NOVEMBER 21, 22.—The annual exhibition was held in the Music Hall Buildings, and was a great success. Last year was a most favourable year for the growing of Chrysanthemums, and the Society's exhibition then was considered a record one, the entries being 120 ahead of 1900. This year has been a most disastrous one for growers, but notwithstanding, the record of entries was again broken this year, the entries being fifty ahead of those last year. The promoters had to arrange for larger accommodation, the old arrange-

ments proving quite inadequate, the entries in all numbering 687.

The feature of the display undoubtedly lay in the cut specimens. In the competition for twelve vases of Japanese Chrysanthemums in twelve varieties, three blooms of each variety, for which the presidents and patrons of the society offered a magnificent Challenge Cup, Mr. W. M. MOIR, Rosehaugh, Ross-shire, carried off the trophy with a superb collection. It was composed of the following:—Mrs. J. W. Banks, Lady Ridgway, Australie, Millicent Richardson, M. Louis Rémy, Madame Herrawege, W. R. Church, Mr. J. Cleeue, Miss Nellie Pockett, Edith Tabor, Mrs. Greenfield, and Miss Elsie Fulton; the last-named variety was also adjudged the best bloom in the show. It is a white, in shape circular as a ball. Mr. PATERSON, Balmedie, and Mr. JOHN PIRIE, Strichen House, also came out well in this competition.

There was strong competition for the Silver Cup for eighteen blooms of Japanese Chrysanthemums. Mr. ROBERT GRIGOR, Whitelands, Dumfries, won with a most meritorious display; and was closely followed by Mr. A. HUTTON, Usan House, Montrose.

There was also a very good display in the class for twelve blooms of Japanese Chrysanthemums, at least six varieties. Here Mr. H. M. G. ROBB, Orton House, Fochabers, Banffshire, proved the winner.

The display of incurved blooms was declared by the judges to be the finest seen in Scotland this season. 1st and 2nd places for these were most worthily taken by Mr. J. Jamieson, Burton Hall, Loughborough, gr. to the Duke of SOMERSET. Other prominent prizewinners in the cut flower sections were Mr. A. PARK, Leckmelm House; Mr. WILLIAM PATERSON, Balmadie House; and Mr. JAMES SMITH, Mugiemoss.

The two handsome Silver Medals awarded by Mr. W. WELLS, Earlswood Nurseries, for the best blooms of his novelty introduction, were won in the professional class by Mr. W. M. Moir, gr. to Mr. FLETCHER, Rosehaugh, Ross shire, for a splendid bloom of the purple and bronze "W. R. Church" variety.

The plants in pots were a splendid lot. For the best group, arranged in semi-circular form, 10 feet long by 5 feet deep at centre, to be judged for quality and effect, Mr. John Proctor, gr. to Sir WILLIAM HENDERSON, Devanha House, Aberdeen, scored a notable victory, carrying off the handsome Challenge Cup presented by the seed and nursery trade of Aberdeen.

Other 1st prizemen in this section were Mr. A. GRIGOR, Fairfield; Mr. J. SIM, Glenburnie Park; Mr. J. FORSTER, Dunecht; Mr. J. JENKINS, Clifton House; and Mr. J. D. SMITH, Aberdeen.

There was also a fine display of fruit and vegetables, which added not a little to the success of the exhibition. Among the professional gardeners who took prominent places in this department were Mr. Alex. Park, Leckmelm House, Ross-shire; Mr. James Rae, Ethie Castle, Arbroath; Mr. W. M. Moir, Rosehaugh, Ross-shire; Mr. Andrew Reid, Durris House; Mr. John Ogston, Bourtie House; Mr. John Pirie, Strichen House; Mr. Alex Davidson, Pitmuxton; Mr. W. Lawson, Oakbank School; Mr. W. Rankin, Countesswells; Mr. Frank Kinnaird, Broombill; Mr. W. Milne, Corsindae House; Mr. T. B. Middleton, Monymusk House; Mr. Robert Grigor, Glenbervie; Mr. John George, Fochabers; Mr. J. Ferguson, Linton House, Cluny; Mr. James Macdonald, Midmar; and Mr. A. Paterson, Ruthrieston.

FLORISTS AND NURSERYMEN.

In the competition for bouquets, wreaths, crosses, &c., Mr. ALEXANDER BURNS, jun., florist, Aberdeen, took leading honours for wreaths and crosses.

Messrs. KNOWLES & SON, Aberdeen, were 1st for hand bouquets, while Mr. ROBERT BURNS, Aberdeen, had the best lady's spray.

Mr. ALEX. BURNS, jun., Messrs. W. SMITH & SON, Aberdeen; and Messrs. BEN. REID & Co., made fine exhibits of flowers and floral arrangements.

READING & DISTRICT GARDENERS MUTUAL IMPROVEMENT.

NOVEMBER 24.—The fortnightly meeting of the above Association was held on the above date, and was well attended, Mr F. Lever presiding. The subject for the evening was "All phases of Pruning in connection with Hardy Fruit Culture," this being the title of the 1st prize essay in the Association's recent competition, and was read by Mr. C. P. Cretchley, gr., The Honeys, Twyford, the successful competitor.

The paper was of a practical character, and an interesting and profitable discussion followed, in which Messrs. Hinton, Wilson, Fry, Neve, Parfitt, Alexander, Exler, Iggulden, and Townsend took part.

A fine batch of Cyclamens was staged by Mr. F. W. EXLER, gr., East Thorpe, Reading, the plants showed vigorous growth, and were full of flower. This exhibit was not entered for the Certificate, but the members, to show their appreciation of the display, passed a special vote of thanks to the exhibitor.

The subject for the next meeting will be "The Cultivation of Peaches and Nectarines," by Mr. W. TRIBBICK, of Brooke, Isle of Wight.

NATIONAL CHRYSANTHEMUM.

NOVEMBER 21.—The usual monthly meeting of the Committee was held at the Royal Aquarium. A letter was read from the President, Sir A. ROLLITT, M.P., from New York, regretting his inability to preside at the Annual Dinner of the society, but expressing a hope that he might be present at the Annual General Meeting. The amount of prize money awarded at the November show was reported to be £330 9s., and a list of the Medals awarded to miscellaneous exhibits was also announced. Some protests entered against the awards of the judges, which had been dealt with by the Arbitration Committee, were reported, and the decision of the latter body in one case over-ruled. An interim financial statement was made showing a substantial balance in hand, but the Secretary pointed out there were heavy liabilities to meet, and it was necessary to be careful in incurring extra expenditure. On the recommendation of the Finance Sub-Committee, the sum of Five Guineas was voted from the funds of the Society towards the Building Fund of the Memorial Hall of the Royal Horticultural Society. The fixtures for the exhibitions to be held in 1903 were then made, viz.:—October 6, 7, 8; November 10, 11, 12; December 1, 2, 3.

It was agreed that the Annual Dinner, owing to the absence of the President, should be deferred until the spring. Meanwhile, it was agreed a smoking concert should take place on December 18, and a small committee was appointed to carry out the arrangements. It was resolved that the Floral Committee should be entertained at dinner as usual. Some rules revised by the President were submitted, and it was resolved that the same be considered at the next meeting of the Committee. An interim report was made as to certain places in which the meetings of the Committee might be held, and the same referred to the Sites Committee. Nine candidates for membership were elected, inclusive of two Fellows.

CROYDON & DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

THE usual fortnightly meeting was held at the Sunflower Temperance Hotel recently. Mr. W. J. SIMPSON presided, and with a few introductory remarks, called upon Mr. H. O. ETHERINGTON, manager to J. R. FOX, West Wickham Nurseries, who gave a highly interesting lecture on "How Plants Grow." A discussion followed. Mr. ETHERINGTON having replied to questions, on the proposition of the Chairman, seconded by Mr. BUNYARD, a unanimous vote of thanks was accorded him. "Stove and Greenhouse Ferns" will be the subject for next meeting.

TRADE NOTICE.

WOOD & INGRAM.

HUNTINGDON NURSERIES, AN IMPORTANT CORRECTION.—With reference to our notice under this heading in last week's issue, we much regret having made an error in our statement respecting the well-known business of Wood & Ingram, of The Old Nurseries, Huntingdon.

We are now definitely informed by Mr. John Edward Perkins, of 52, Market Square, Northampton, that he has bought the goodwill of the business, the whole of the freehold and copyhold properties, situated in Huntingdon and Brampton, including the forty acres of nursery ground, the whole of the glasshouses, and the entire stock-in-trade.

The business will in future be personally conducted by Mr. Henry Perkins at The Old Nurseries, Huntingdon, with a branch at St. Ives, under the old name and style of Wood & Ingram. The firm of J. Wood Ingram & Son is *not* connected with this business in any way whatever.

J. WOOD INGRAM & SON.

We are also informed, in a letter from Mr. J. Wood Ingram, that "a new business will be carried on at Huntingdon and St. Ives (Hunts), and [that] the business at the St. Neot's nursery and seed establishment as heretofore under the name and style of J. Wood Ingram & Son."

MARKETS.

COVENT GARDEN, November 27.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. ED.]

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, English, per sieve	2 0	3 6
— Blenheims, per bushel	5 0	7 0
— Cox's Orange Pippin, sieve.	3 0	6 0
— King's, per bushel	5 0	6 0
— Harveys and various cookers, per bush.	3 6	7 0
— American, per barrel	12 0	20 0
Bananas, bunch	7 0	12 0
— loose, dozen	1 0	1 6
Chestnuts, French, per bag	9 0	15 0
— Italian, p. bag	20 0	—
Cobnuts, per lb.	0 4	—
Cranberries, case	15 0	—
keg	2 6	—
Figs, foreign, box or basket	0 10	1 6
Grapes, Belgian, per lb.	0 4	0 8
— Alicante, lb.	0 6	1 0
— Colman, A. lb.	1 6	2 0
— — B., per lb.	0 6	1 0
— Muscats. A. lb.	3 0	4 0
— — B., per lb.	0 9	1 6
Lemons, per case	10 0	12 6
Lychees, packet	0 11	—
Melons, English, each	2 0	3 0
Oranges, case	9 0	12 6
Pears, per sieve	2 0	3 0
— stewing, per basket	3 0	4 0
— F., crates	5 0	7 6
Pines, each	3 0	5 0
Walnuts, foreign, bags	5 0	7 6

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen	2 6	3 0
— Jerusalem, per sieve	1 6	—
Asparagus, sprue	1 0	—
— bundle	6 0	—
Beans, dwarf, lb.	0 8	0 10
— Madeira, bkt.	2 0	—
Beetroots, bushel	1 3	1 6
Brussels Sprouts, per sieve	0 9	1 0
Cabbage, p. tally	1 6	2 6
Carrots, doz. bun.	1 6	2 0
— bag (washed)	2 6	—
Cauliflowers, per dozen	1 0	2 0
Celeriac, per doz.	1 6	—
Celery, per dozen bundles	8 0	10 0
Chicory, per lb.	0 3	0 4
Cress, per dozen punnets	1 3	—
Cucumbers, doz.	3 0	5 0
Endive, per doz.	1 6	—
Garlic, per lb.	0 3	—
Horseradish, foreign, p. bunch	1 3	1 6
Leeks, per dozen bunches	1 0	1 6
Lettuces, Cabbage, per dozen	0 9	1 0
Mint, per dozen bunches	0 4	0 6
Mushrooms, house, per lb.	1 0	—
Onions, bag	2 6	3 6
— foreign, case	5 6	6 0
— picklers, per sieve	2 0	3 0
Parsley, per doz. bunches	1 0	1 6
— sieve	0 6	0 9
Parsnips, per bag	2 0	2 6
Potatos, per ton	90 0	110 0
Radishes, p. doz. bunches	0 9	1 0
Salad, small, punnets, per doz.	1 3	—
Savoys, tally	3 0	4 0
Seakale, per doz. punnets	21 0	—
Shallots, per doz.	0 1½	0 2
Spinach, English, bushel	0 9	1 0
Tomatos, English, per doz. lb.	4 0	5 0
— Canary, deeps	3 0	4 0
Turnips, per dozen	1 6	2 0
— bags	1 6	2 6
Watercress, per doz. bunches	0 3	0 6

POTATOS.

Various samples, 70s. to 90s. per ton; Dunbars, red soil, 100s. *John Bath, 32 & 34, Wellington Street, Covent Garden.*

REMARKS.—Sweet Potatos, per cwt, 16s; Persimmons, per box, 1s. to 2s.; Grape Fruits, per case, 10s. to 12s; Madeira Mangos, per dozen, 3s.; Custard-Apples, per dozen, 5s. to 12s.; and Vegetable-Marrows, 8s.; Chow-Chows, 1s. 6d. to 2s., all by the dozen. Home-grown common Apples are a drug on the market; some American New Town Pippins fetch up to 30s. per barrel; Californian, cases, 8s. to 10s. The Cranberries in cases are American, those in kegs Russian.

CUT FLOWERS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Arums, per dozen	4 0	5 0
Asparagus Fern, per bunch	0 6	2 0
Bouvardias, per dozen bunches.	6 0	8 0
Camellias, per dozen	2 6	—
Carnations, per bunch	1 0	2 0
Chrysanthemum, various, per doz. bunches	3 0	24 0
Eucharis, p. doz.	3 0	4 0
French Fern, per doz. bunches	0 4	0 6
Gardenias, per box	1 6	2 0
Lilium album, doz. blooms	1 6	2 6
— Harrisii, per bunch	4 0	5 0
Lobelia, Red, per dozen bunches	4 0	6 0
Lily of the Valley, per dozen bunches	6 0	18 0
Maidenhair Fern, per dozen bunches	4 0	6 0
Marguerites, Yellow, per dozen bunches	1 6	2 0
Mignonette, per doz. bunches	1 6	2 6
Mimosa, p. bunch	0 9	1 6
Narcissus, dozen bunches	3 0	4 0
Orchids (Cattleya) dozen blooms	9 0	12 0
Pelargoniums, Scarlet, dozen bunches	2 0	4 0
Roman Hyacinths, dozen bunches	10 0	12 0
Roses, Mermet, p. bunch	1 6	2 6
— red, p. dozen bunches	3 0	8 0
— various, doz. bunches	3 0	18 0
Smilax, per doz. trails	1 6	2 6
Stephanotis, per dozen	2 0	3 0
Tuberoses, per doz. blooms	0 3	0 4
Violets, per dozen bunches	1 6	2

PLANTS IN POTS, &c.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.		s.d.	s.d.
Adiantums, per dozen	4 0	8 0	Ferns in variety, per dozen ...	4 0	30 0
Aralias, per doz.	4 0	8 0	Ficus elastica, per dozen	9 0	24 0
Arbor Vitæ, per dozen	9 0	18 0	Genistas	8 0	—
Aspidistras, per dozen	18 0	36 0	Lycopodiums, pr. dozen	4 0	5 0
Aucubas, per doz.	4 0	8 0	Marguerites, per dozen	5 0	8 0
Chrysanthemum, various	3 0	18 0	Palms, various, each	3 0	20 0
Crotons, per doz.	12 0	24 0	Primulas, p. doz.	4 0	6 0
Cyclamen, p. doz.	12 0	18 0	Pteris tremula, per dozen	4 0	8 0
Dracænas, var., per dozen ...	12 0	30 0	— Wimsetti, per dozen	4 0	8 0
Evergreen, pr. dz.	3 0	18 0	— major, per dz.	4 0	8 0
Ericas, per dozen	9 0	12 0	Solanums, p. doz.	6 0	12 0
Euonymus, vars., per dozen ...	4 0	6 0			

SEEDS.

LONDON, *Nov.* 26.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., report a thin attendance on to-day's market, with only a small business passing. Although the recent excitement which characterised Red Clover seed has now for the time gone off, holders show extreme firmness, and confidently regard present prices as fully justified by a broad view of the situation. Alsyke and White also well hold their own; whilst rather more attention is being given to Trefoil. There is no alteration this week in Ryegrasses; and Sanfoin, Timothy, Cocksfoot, and Lucerne remain fully as dear. Some few sales are noted of Winter Tares, but Rye is neglected. The sale for Mustard and Rapeseed is slow. Canary-seed continues to excite considerable speculative interest, and prices constantly march upwards Meantime other birdseeds show no alteration. Blue Peas and Haricot Beans are in moderate request at last week's figures.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending Nov. 22, 1902, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1901.	1902.	Difference.
	s. d.	s. d.	s. d.
Wheat	27 1	24 11	— 2 2
Barley	26 10	25 6	— 1 4
Oats	18	17 2	— 1 5

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period Nov. 16 to Nov. 22, 1902 Height above sea-level 24 feet.

1902. NOVEMBER 16 TO NOVEMBER 22.	DIRECTION OF WIND.	TEMPERATURE OF THE AIR. At 9A.M. Dry Bulb.	Wet Bulb.	DAY. Highest.	NIGHT. Lowest.	RAINFALL.	TEMPERATURE OF THE SOIL at 9A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	LOWEST TEMPERATURE ON GRASS.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 16	S.E.	42·2	38·6	44·9	41·6	...	46·2	48·7	51·1	39·2
MON. 17	S.E.	39·7	37·3	43·9	35·7	...	44·6	48·3	51·0	23·1
TUES. 18	E.N.E.	34·8	32·9	40·4	23·9	...	42·4	47·8	50·8	24·6
WED. 19	E.N.E.	33·8	32·9	37·0	33·2	...	40·9	46·6	50·5	28·5
THU. 20	E.N.E.	34·0	32·8	35·0	32·5	...	40·1	45·8	50·2	30·8
FRI. 21	N.E.	33·5	32·5	39·1	29·0	...	39·4	45·3	50·0	25·6
SAT. 22	S.E.	31·7	32·6	43·6	31·2	0·03	39·2	44·7	49·5	25·0
MEANS	...	35·1	34·2	40·6	34·0	Tot 0·03	41·8	46·7	50·4	28·1

Remarks.—A very dull, dark week, with cold east wind.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending Nov. 22, is furnished from the Meteorological Office:—

"The *weather* during this week was mainly fair over the Kingdom as a whole, although on our extreme western and south-western coasts much cloud and gloom prevailed at times, and rain fell occasionally. Thunder, lightning, and hail occurred on Saturday in the extreme south-west of Wales.

"The *temperature* decreased very quickly soon after the commencement of the week, and became very low for the time of year over England. In England, S., the deficit in the mean value from the average was as much as 8°, and in the Channel Islands, England, S.W., the Midland Counties, and England, E., 6°. In Ireland and Scotland there was very little or no deficit, and in Scotland, N. the mean value was even slightly above the average. The highest of the maxima were recorded as a general rule on Sunday, and ranged from 50° in Ireland, S., and 55° in the Channel Islands and Scotland, N., to 47° over central and eastern England. On Wednesday and Thursday the maxima over the more south-eastern and southern districts of England were much below 40°. The lowest of the minima, registered during the latter half of the period, ranged from 13° in the Midland Counties, and 20° in several of the other "Wheat producing" districts, to 32° in Ireland, N. and the Channel Islands.

"The *rainfall* was very slight in most districts, but just equalled the mean amount in Ireland, S. In many parts of England the fall was scarcely appreciable.

"The *bright sunshine* exceeded the mean over the Kingdom as a whole, but only just equalled it in Scotland, N., and was in defect in Scotland, W., England, S.W., and Ireland, S. The percentage of the possible duration varied from 38° in England, N.W., 37 in England, E., to 16 in England, S.W., and to 12 in Scotland, W."

THE WEATHER IN WEST HERTS.

DURING the recent spell of cold weather the temperature remained very low. On two consecutive days the highest reading in the thermometer-screen was only 2° in excess of the freezing-point. It is now twelve years since such a low maximum temperature as 31° has been recorded here in November. The nights were not as exceptionally cold as the days. On each night, however, the exposed thermometer showed from 6° to 12° of frost, the latter reading being the lowest as yet of the present autumn. The temperature underground has risen rapidly the last few days, but at two feet deep is still 2° colder than is seasonable. Previous to the 22nd no rain had fallen for ten days, but since then about a quarter of an inch has been deposited. This fall has been sufficient to start again the bare soil percolation gauge; but that covered with short grass, through which no rain-water had come for eight days, has not been affected by it. Four days proved altogether sunless, but taking the week as a whole there was about an average record of bright sunshine. Calms and light airs have again mostly prevailed, while the atmosphere has continued, as a rule, very humid. My Dahlias, which were slightly injured by frost on October 19, were completely killed by 12° of frost on the night preceding the 21st inst. This is more than a fortnight later than the average date of their destruction in the previous seventeen years, and in only two of those years has a later date been recorded. *E. M., Berkhamsted, November* 25, 1902.

CATALOGUES RECEIVED.

R. C. NOTCUTT, Woodbridge, Suffolk—Fruit Trees, Roses, Ornamental, Flowering, and Forest Trees and Shrubs, &c.

CLARK BROS. & CO., 65, Scotch Street, Carlisle—Fruit Trees, Roses, Trees and Shrubs, &c.

W. SHAND, Greaves Nurseries, Lancaster — Forest, Fruit, and Ornamental Trees and Shrubs, Herbaceous Plants, Roses, &c.

WISEMAN, Elgin, N.B.—Trees and Shrubs.

W. CLIBRAN & SON, Altrincham and 10 & 12, Market Street, Manchester—Trees and Shrubs, Roses, Fruit Trees, &c.; also Chrysanthemums

HOGG & WOOD, Coldstream and Duns, N.B.—Trees and Shrubs, Roses, Fruit Trees, &c.

JNO. FORBES, Hawick, N.B.—Trees and Shrubs, Fruit Trees, &c.

WM FELL & CO., Ltd, Hexham.—Trees and Shrubs, Roses, Stove and Greenhouse Plants, Hardy Herbaceous Plants, and Fruit Trees.

BEN REID & CO., Ltd., Aberdeen — Forest Trees, Roses, &c.

WOOD & INGRAM, The Old Nursery and Seed Establishment, Huntingdon—General Nursery Stock.

FOREIGN.

C. ESCHWEILER, Oudenbosch, Holland—Trees and Shrubs, Roses, Fruit Trees, &c.

T. V. MUNSON & SON, Denison, Texas—Fruit Trees, Ornamental Shrubs, &c.

THOS. MEEHAN & SONS, Germantown, Phila., Pa.—Hardy Trees and Plants.

HAAGE & SCHMIDT, Erfurt, Germany—Novelties in Flowering Plants and Vegetables.

M. HERB, Naples, Italy—Seeds.

FREDERICK ROEMER, Quedlinburg, Germany.—Trade list of Flower Seeds.

ANSWERS TO CORRESPONDENTS.

ALGA IN WATER: *M. C., Rothesay.*—The Alga is an Oscillatoria; it is usually found in semi-stagnant water, but sometimes in streams. There is no practical way of getting rid of it in a loch, but it is not in the least injurious to health. It is one of the blue-green Algæ (Cyanophyceæ). *G. M.*

BOOKS.—BEDDING PLANTS: *B. Y.* One of the most complete, although in the matter of varieties behind the times, is the *Handy Book of the Flower Garden*, by Thomson, and published by Messrs. Blackwood. For garden plans and beds, apply to Messrs. H. Cannell & Sons, Swanley, Kent. The new edition of Thompson's *Gardener's Assistant*, published by the Gresham Publishing Company, 34, Southampton Street, W.C., would furnish all the information you require.

BROAD-LEAVED GRASS COMING UP AMONG TREFOIL: *S. H. B.* Without seeing it we can only surmise it to be Lolium italicum—Italian Ryegrass. L. perenne is not so wide in the leaf-blade, but if obtained from a good house it is far safer to use in pastures.

CALANTHE FLOWERING FROM THE TOP AND BOTTOM OF THE PSEUDO-BULB: *Zola.* This is not a common occurrence, and is perhaps due to extra vigour in the plant.

CARNATION DISEASED: *J. Donoghue and W. Cooke.* The plant is apparently suffering from eelworms, for which we know of no cure. Afford a change of quarters for the plants, and use no loam or other natural soil with the staple, unless it has been baked, or kept in stack quite two years, and the stack kept free from herbage the whole time.

CARNATION-LEAVES: *Zola.* The fungus found on the leaves is a Rust-fungus, Helminthosporium echinulatum. Cut off the affected leaves, and keep water away from the plant, as it is chiefly by the aid of water—rain, heavy dew, &c.—that the spores are carried about a plant. There is no other way of arresting the spread of the pest. If in the open ground, put a hand-light, frame, or even a large sheet of glass, over the plants.

CHRYSANTHEMUM BLOOM: *J. S.* Has there not been some mistake? The florets appear not quite like those of Viviand Morel, or of any sport of that variety.

CHRYSANTHEMUM ETOILE DE LYON: *R. A. R.*—It is not unusual for first crown buds to produce white blooms. In all varieties there is least colour in flowers obtained from the most unnatural, namely the first crown buds, and most perfect colour development in flowers which open from terminal buds.

DISCOUNTS: *Jacobi.* We think that unless the practice is fully known to and sanctioned by the employer or purchaser, it is essentially wrong in principle, and does harm in the long run to both donor and recipient. If the practice is known and sanctioned, there is nothing more to be said. In the particular case you mention, we think it was wrong for the contractor to offer the discount without informing you, and it cannot have been right for a man who had nothing to do with the business in any way to accept it..

DRESSING FOR CLEAN VINE-RODS: *W. S. W.* Rub off (not peel) the loose bark, and having made a wash with Gishurst Compound-soap, at the rate of 3 ounces in one gallon of hot-water, paint with a moderately stiff paint-brush the rods from the ground level to the top.

GRAPES DECAYING: *A. E. R.* The bunches of Grapes being dead-ripe are suffering from a damp atmosphere in the vinery, and somewhat from shanking. Cut out all shanked berries, cover the border with dry straw or bracken, and apply heat on fine days, when air can be afforded. Do not place pot plants needing water at the roots in the vinery.

GRASSES FOR RACE-COURSE: *T. H. B.* Festuca pratensis may be used if the course is a low-land pasture not liable to be flooded; F. ovina, a small, densely-tufted species, remains green in hot, dry weather; it should be used in mixtures, as it will not make a close turf alone.

F. duriuscula thrives along with F. pratensis and Poa trivialis, and comes into growth in early spring; on moist soils it gives a great amount of herbage. Not much of Poa trivialis should be used, unless manures rich in potash and phosphoric acid can be applied. These various grasses may be mixed with a considerable proportion of perennial Rye-grass. Seeds of Trifolium repens and T. minus should be sown before the grasses, and hacked in slightly with a short-toothed harrow or hoes, the grasses being then sown, and the land rolled.

GREY FLOCCOSE SUBSTANCE ON BARK OF BEECH TREE: *J. P., Carnforth.* The bark of the tree is infested by Chermes Fagi (Adelges), the Woolly Scale of the Beech. This insect is of a linseed shape, and covered with a white flocculent coating. According to Hartig, it causes pock-like galls on the rind of Beeches under the periderm, and when these penetrate to the wood they bring about the rupture of the rind, and the formation of a canker spot of the size of a crown-piece, by which young trees are completely destroyed. If the trees are not too large, washing with petroleum emulsion might have a good effect.

LITERATURE ON POTATO HYBRIDISATION: *Solanum.* Consult the Lindley Library catalogue, at the Royal Horticultural Society's offices, 117, Victoria Street, Westminster.

LILIUM LONGIFLORUM: *J. C.*, and *S.* The plants are attacked by the well-known Lily disease (Botrytis), which has caused much loss in recent years. It will be better to destroy the bulbs by fire. On another occasion such communications should be addressed to the Editor.

LOOKING FOR A SITUATION: *J. M.* Your employers are rather hard upon you; still, we think that you cannot insist upon a supposed right to absent yourself from your duties in your search for a new situation. It might result in loss of salary and a refusal to give you a "character."

MUSSEL SCALE ON APPLES (MYTILASPIS POMORUM): *C. C. James.* You may clear the trees of this pest if use be made of petroleum emulsion at this season of the year, or a smothering compound of clay, cow-dung, flowers-of-sulphur, and lime, mixed in water or skim milk, and applied with a paint or whitewash brush. It should be made so thick as to form an air-tight covering when dry.

NAMES OF FRUITS, ETC.: *We are desirous to oblige our correspondents as far as we can, but the task is becoming too great, too costly, and too time-consuming for us to continue it without restrictions. Correspondents should observe the rule that* **not more than six varieties** *be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. The fruits should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.* — *H. W., Braintree.* Pear Marie Louise d'Uccle.— *Sir Chas. S. and H. J., Norwich.* Unfortunately the Pears were completely rotten when received here.—*W. C. C.* 1, King Pippin; 2, September Beauty; 3, Court of Wick; 4, fine fruit of Cox's Pomona; 5, Beauty of Kent; 6, Alfriston.—*Ted.* Pear quite rotten, send earlier next year.—*Cutbush & Son.* Apple, Bedfordshire Foundling; Pear, Josephine de Malines.—*W. Trevethick.* Pear Ne Plus Meuris.—*A. W.* Too small for recognition.—*William Price.* We have nothing amongst our large collection of Crabs resembling yours. We give the opinion that it is a "local seedling"; 3, a local variety; 4, Rosemary Russet.—*J. W. S.* Pear Keiffer Seedling. *R. T.* Apple Hollandbury.—*Grey.* 1, Fearn's Pippin; 2, Rosemary Russet; 3, Small's Admirable; 4, deformed specimen; 5, Golden Noble.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.* Panax. The Platycliniums like pla... Liparis longipes; the yellow flower Maxillaria variabilis; the other Sarcanthus insectifer. The hybrid exhibits singular malformation.—*C. Abbott.* Asplenium bulbiferum, Pteris tremula, and Adiantum Waltoni.—*W. E.* 1, not an Ivy-leafed Pelargonium, but Senecio macroglossus; 2, Begonia incarnata metallica.—*Z.* 1, Cupressus obtusa (Retinospora obtusa); 2, uncertain. We believe it to be Thuya japonica alias Standishi.

PELARGONIUM TABULARE: *M. B.* We are unable to answer your enquiry.

POPULAR ENGLISH PLANT NAMES: *T. H. B.* Blue Devil's Bit, Scabiosa succisa; Gratton Grass, is this a form of Gratia Dei? a Latin name popularly used, Gratiola officinialis. The name Ur-grass we are unable to trace.

PROPAGATING AUCUBA, IVIES, &C.: *W. H. S.* Yes, the cuttings of Ivy may be expected to strike in heat, or in the open ground if taken now from good, firm shoots. Those rooted in heat will make good plants much sooner than the others, but should be shaded until roots have formed. Ivies are also propagated by seeds and layers, the latter method being a most convenient one. Aucuba japonica is increased by seeds, or by cuttings. Seeds may be sown as soon as ripe. Cuttings 6 inches long taken off with a heel will root either in spring or autumn if inserted in light sandy soil in a cool structure, or in the open ground. The Dogwood (Cornus) may be increased by cuttings, layers, or suckers, all of these means being successful if practised in autumn. Named varieties, and even several weak growing species, are sometimes budded in late summer on to seedling plants of Cornus mas. The dwarf-growing C. canadensis is easily increased by division, when the roots have got well away, or by seeds.

SEED-VESSELS OF BEGONIA GLOIRE DE LORRAINE: *H. H.* It is not rare for the variety to produce seed-vessels; the rarity is for it to perfect seeds. The seed-vessels sent contained ovules, but whether these were capable of germination could only be tested by sowing them.

SENDING HOME ORCHIDS: *Ceylon.* The chief matter to be observed in sending home Orchids is that the plants should have mature growth, and no young growths in progress. With evergreen Phaius and similar plants, it would not be detrimental to remove the foliage. If properly matured plants are selected, they may be placed in boxes of moderate size, either without any packing material, and with a few struts across at intervals during the packing; or with a very small amount of dry shavings, or paper cuttings. We would not advise you to import leaf-soil for Orchids.

SERVICE ON A TEA PLANTATION: *J. S.* The obvious course, if you have no one to interest himself on your behalf, is to advertise, and preferably in papers circulating in India and Ceylon.

SHALLOTS AND GARLIC: *F. G. D. B.* Select a warm site for the beds, say one in the front of a south wall, and as early in the month of February as the ground can be caught in a fairly dry condition, draw drills 2 inches deep and 1½ ft. apart, place whole bulbs at 7 inches to 8 inches apart at the bottom of the drills, pressing those of Shallots but very slightly, and those of Garlic half an inch into the earth. Having planted the bulbs, half fill the Shallot drills with finely sifted coal-ashes, and quite fill those containing the Garlic; and rake level the earth drawn out of the drills, but not covering the ashes. After frosts the bulbs of the Shallot may need to be pressed into the earth. Slight sprinklings of potash or wood-ashes may be applied twice during growth. Lift the bulbs when the leaves become yellowish, pull up the former, dry them in the sun for a few days, then, after twisting off the tops and loose skin, store in a cool airy shed thinly, or rope them.

SIEVES AND TALLIES: *J. Kelly.* The sieve and half-sieve approach the Imperial bushel and half-bushel, heaped measures of the former equalling the latter if not heaped. The sieve contains 28, and the bushel 32 quarts. The number of Apples going to each would of course depend on their size. A tally is 66 in some cases.

SPECIFIC NAME OF A CHRYSANTHEMUM: *A. B. and L. F.* Niveum is correct.

SPORTS, PRINCIPALLY OF CHRYSANTHEMUM: *J. G.* We do not know of any special work on the subject; but the subject is often discussed in our columns.

SPRINGY TURF AND SALT: *T. H. B.* The salt would for a time tend to retain moisture in the upper stratum of soil; but the effect would not be lasting, unless dressings were applied at intervals of three months during the growth of the grass. Any organic manures applied to the turf, which would have the effect of favouring dense growth, and the sowing of the grasses, and especially the Clovers named under the heading "Grasses for Race-course," would improve its springiness. The roller should be often used, especially after racing, all footprints being filled in; and when these are large, as when two or three come on one spot, grass-seed should be sown on the mended patches, if the season permits, or thick sods taken from the unused parts of the course, and well beaten down with a turf-beater.

THE GREEN CHRYSANTHEMUM: *Chrysanthemum.* In a perfect example the flowers are normal as to form, or nearly so, but the colour is not developed, and hence the flowers become green, like leaves. Green Dahlias, green Roses, and some other green flowers owe their appearance to the same cause. In other cases of so-called green flowers, the true flowers are not produced at all, but only green scales, which take their place.

THE THREE HEAVIEST BUNCHES OF GRAPES GROWN IN THESE ISLANDS: *R. E.*—White Nicé, shown by Mr. Dickson at Edinburgh, September 16, 1875: 25lb. 15oz.; see *Gardeners' Chronicle*, September 18, same year. The next bunch approaching this one in weight, was one of Gros Guillaume, grown by Mr. Roberts, gardener at Charleville, viz., 23lb. 5oz., see *Gardeners' Chronicle*, November 10, 1877. A bunch of Black Hamburgh was shown by Mr. Hunter at Belfast in 1874, weighing 21lb. 12oz.

COMMUNICATIONS RECEIVED.—E. Rodigas—M. Buysmann—Sec., Bolton Chrysanthemnm Society (too belated to be of interest)—Sec., Dulwich Chrysanthemum, Society & R. D. (too belated to be of interest).—Chrysanthemum, Z.—Berks County Council—Comtede K.—S. C.—W. H. W., with thanks—L. C., if correspondents do not correspond, we cannot be responsible for omissions—Jacobi—Dr. Chrst, Basle—H. H. d'O.—F. W. M.—Prof. Johnson—W. J. Tutcher, Hong Kong—De B. C., next week—F. Clarke, Lowther—J. E. H.—F. P. D., Wallington—T. S., Ross—S. H.—A. M.—C. T. D.—S. C.—J. D. G.—De B. Crawshay—G. W.—Rev. H. H. D'O.—E. H. J.—Expert—A. F.—W. Botting H.—H. C. Prinsep—F. W.—W. K.—J. R. J.—N. E. B.—A. D.—A. B.—W. H. D.—P. B., Natal—C. E. B.—Wm. C.—W. T. D.—Geo. S.—J. J.—Mrs. H.

GARDENING APPOINTMENTS.

MR. DAVID GREENLAW, for the last five years Head Gardener at Borris House, co. Carlow, as Head Gardener to the Marquis of WINCHESTER, Amport House, Hampshire.

Mr. WALTER BARNES, for the past five years as Foreman at Loudwater House, Rickmansworth, as Gardener to W. WELLAR, Esq., The Plantations, Amersham, Bucks.

Mr. H. M. BUTCHER, for more than thirteen years Head Gardener at North bank, Muswell Hill, as Gardener to C. W. DRIVER, Esq., Bedfont, Feltham, since August.

Mr. G. SCOVELL, until lately Foreman at Hampworth Gardens, Downton, Salisbury, as Head Gardener to Mrs. NEWMAN, Manor House, Purse Caundle, Melborne Port, Dorset.

Mr. WILLIAM BRUCE, from The Gardens, Rockville, Murrayfield, Edinburgh, as Head Gardener to YORK SCARLET, Esq., Gigha, Argyllshire. Enters on duties November 28.

Mr. ALBERT HAYNE, lately Foreman at Castle Ashby, and formerly Foreman in the gardens, Manderston, Duns, as Gardener to Sir WM. WATKIN W. WYNN, of Wynnstay, Ruabon, and entered upon his duties November 24.

Mr. G. FULFORD, late Gardener at Presdales, Ware, Herts, as Gardener to Col. A. FINLAY, Little Brickhill Manor, Bletchley, Bucks.

Mr. W. J. BURRELL, for seven and a half years and for over four years Foreman in the gardens, Poltalloch House, Lochgilphead, N.B., as Head Gardener to Lady FOWLER, Braemore, Ross-shire, N.B.

Mr. E. ARNOLD, for the last ten years Head Gardener at The Cedars, Byfleet, Surrey, as Head Gardener to C. B. SMITH, Esq., Denham Mount, Denham, Bucks.

THE
Gardeners' Chronicle
No. 832.—SATURDAY, DEC. 6, 1902.

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SPECIFIC VARIATIONS CAUSED BY GRAFTING.

WE have from time to time called attention to the very remarkable experiments in grafting made by M. Daniel, of Rennes, experiments so remarkable that a considerable amount of scepticism may naturally be expected with regard to them. We find in the *Revue Horticole*, for Sept. 1, an interesting article by M. Grignan, including a summary of some of M. Daniel's work, which, as it may be of interest to many of our readers, we reproduce, hoping that some of our cultivators may be disposed to repeat the experiments for themselves and to chronicle the results. It is needless to say how much practical importance attaches to these experiments. They afford another illustration of the urgent necessity for an experimental garden where such researches can be carried out in a manner that is not practicable in purely business establishments.

M. Daniel grafted different varieties of Tomatos one upon another, and on the Aubergine, the Capsicum on the Tomato and on the Aubergine, Potatos one on the other, Pears one on another (principally by double grafting), Roses, various Composites, especially Sunflowers, also Crucifers, Cabbages one on another and on the Turnip, &c., Vines one on another, &c. In these different cases he obtained very marked and extremely interesting variations. Thus, the long violet Aubergine, grafted on the ribbed Tomato, yielded round ribbed fruit, new races were obtained, distinct and more or less intermediate in habit, flowers, fruit, tubers, &c.

Helianthus tuberosus (Jerusalem Artichoke) grafted on to H. annuus (annual Sunflower) yielded particularly interesting results; the annual habit became persistent, and showed in great measure the characteristics of the graft; adventitious roots appeared on the graft at the level of the swelling, and had partly penetrated into the tissue of the stock, and were completely blended with it.

The Medlar raised by MM. Simon-Louis, furnished M. Daniel with another well-marked example. Very interesting variations were observed also in the markings of the graft and the stock, in the time of the flowering, in fertility. All these facts briefly summarised led M. Daniel to conclude that grafting is not always a sure means of preserving the characteristics of varieties, races, or hybrids (though sometimes it is so), but perhaps it may occasionally be a fertile source of variation. M. Daniel had also recourse, in some experiments, to mixed grafting, which enabled him to regulate at will the flow of sap, leaving on the stock a number of leaves proportionate to the vigour of the graft.

The results here mentioned would have but a restricted significance if the specific variation were limited to individuals; but in many cases the acquired characteristics were made permanent by budding or grafting, or even preserved by inheritance. Thus it was that M. Edouard Lefort was able to render persistent a graft-hybrid in the shape of the Potato that bears his name, and which preserves blended the characteristics of the two component varieties, Marjolin and Imperator. M. Daniel obtained analogous results; he even fixed and propagated from seed a new variety originated by him, a cold-resisting Cabbage. M. Jurie fixed a variety of Vine, by budding and grafting. Other plants, Roses for instance, cannot be fixed; Aubergines and Capsicums did not furnish seed.

In some cases the results of the trials are not yet conclusive. M. Daniel grafted the wild on to the red Carrot; the seeds obtained yielded some annual, others biennial plants; some with three normal cotyledons, others with three cotyledons of which one was bifid; others with two cotyledons, one being bifid, and others again with a single cotyledon.

In fact, asexual hybridation, according to M. Daniel, is neither constant nor regular, nor very frequent. Sometimes it operates directly upon the grafted plants, sometimes indirectly upon their descendants; sometimes it affects external, at others internal characteristics; in some cases there is, as in Cytisus Adami, a disjunction or separation of previously blended characters; occasionally heredity and persistency are complete, sometimes partial or lacking. It is also often possible to achieve results already expected. But the most important feature from a practical standpoint, and one to which too much attention cannot be drawn, is that in many cases grafting has already served to ensure a systematic improvement of plants.

In this connection, we may note an important remark by M. Daniel: that when it is required to improve a plant in a certain particular, it must be grafted on to a stock that is superior in that respect. Thus, the author, when originating his breed of cold-resisting cattle Cabbage, selected as stock a Cabbage possessing that quality of hardihood, irrespective of its other characteristics.

As the graft may induce improvement, so it may also produce the contrary result. M. Daniel mentions this danger, with special allusion to the Vine. The grafting of French Vines, practised on a large scale consequent upon the Phylloxera ravages, caused, it seems, the *crus*, or superior wines, to disappear. This opinion is supported by that of MM. Gaston Bonnier, Bellot des Minières, Poubelle, &c. M. Daniel suggests, with M. Jurie, who is also experimenting in this direction, practical trials for the improvement of the Vine by systematic grafting.

The works of M. Daniel are likely to effect, among ancient and traditional doctrines, quite a revolution, but one which is not to be accepted without repeated investigation. His theories, though borne out by facts, are naturally regarded with doubt by some, or are only partly credited. Yet in practice they have been wonderfully justified.

Further confirmation is, indeed, afforded by the works of Herr Lindemuth, head gardener at the Royal University garden, Berlin, who has several times exhibited very interesting specimens of grafting at the exhibitions of the Royal Horticultural Society of Prussia. Herr Lindemuth published in the *Gartenflora* of January 1 last a note of the exhibits shown by him in the preceding October, and which may well be quoted here.

"The following were the grafts shown by Herr Lindemuth:—

"1st. Solanum erythrocarpum on S. lycopersicum (exceptional development).

"2nd. Yellow Wallflower on Red Cabbage. The flowering of the Wallflower was exceptionally early.

"3rd. Hybrid Petunia on Nicotiana.

"4th. Abutilon Thompsoni on Sida Napæa.

"5th. Malvastrum capense with yellow variegated leaves.

"6th. Althæa rosea with yellow variegated leaves.

7th. Abutilon Thompsoni on Althæa narbonensis."

Nos. 4 and 7 require further comment.

"On August 2," says Herr Lindemuth, "I grafted two plants of Sida Napæa, both twenty cents. high (about eight inches) from the ground. The two plants were put in similar soil, and treated in the same way. The grafts have attained a length of twenty-five centimetres (about ten inches); they are fresh, and healthy. Each plant has produced three shoots on the stock. On one, the leaves of the shoots of Sida have become distinctly variegated; on the other they have remained green."

M. Daniel obtained analogous results from mixed grafting, and in his notes describes exactly the variation in the result

under conditions that appear identical, although in reality these conditions are almost always different.

The other instance is still more characteristic. To quote Herr Lindemuth:—"In August, 1900, I grafted Abutilon Thompsoni on young stocks of Althæa narbonensis, a plant closely allied to the common Marsh Mallow. The graft 'took' in a few days. The young stocks were nearly five months old; each had a single shoot, upon which the Abutilon was grafted. Two grafted specimens which did well passed the winter in a cool-house under favourable circumstances; both were put out in the open ground on May 18, 1901.

"On October 31, 1901, the graft of Abutilon on plant A was seventy-five cm. (thirty inches) long; it was vigorous, and bore healthy leaves. The stock Althæa narbonensis had put forth a shoot ninety cm. (thirty-six inches) in length, and branched, which is dead, and still bears ripe fruit.

"The plant is perennial; the shoots issuing from the ground in spring are annual, or, more properly speaking, half-annual; they appear in April, bloom, produce fruit that ripens, then die in September. Meanwhile, large dormant buds form at the base in the earth, which produce new shoots in the following spring.

"Plant B has no shoot except the graft. The parasitic Abutilon has completely absorbed the stock in its own development, and has prevented it from putting forth any shoot. The stock, however, is avenged. The graft has grown, it is true; but half its leaves have already fallen, others appear sickly and begin to die. The parasite can no longer be sufficiently nourished by the stock without the aid of its shoots and its (the stock's) leaves, and is condemned to die with it.

"What scientific and practical conclusions can be drawn from this? The grafted shoots of both plants should, in accordance with their nature, have died in September, 1900; they still live, there is still an Abutilon Thompsoni alive among them, in one case (A) in perfect union and apparently complete vigour. The grafted stocks have, in the course of the year, run through all the stages of their natural existence, they are still fresh, and an interchange of nutritive and constituent elements is still maintained between the roots of the Althæa and the Abutilon graft.

"The results of these experiments lead to the following question: do the grafts of Abutilon and Althæa still grow, and is their existence permanent? Is it possible in certain or in many cases to blend successfully by grafting, annual or short-lived with perennial plants, and would annuals thus grafted live for several or for many years?"

We may add that Herr Lindemuth would not have suggested this last question if he had read the notes published by M. Daniel ten years ago. Apart from this, the grafts of Abutilon Thompsoni on Althæa narbonensis furnish a good instance of the differences yielded by mixed grafting (plant A) and ordinary grafting (plant B), and the more marked influence of mixed grafting.

The length of this note is justified by the importance of the subject—one of the most important, from a practical standpoint, in all gardening.

THE ROSARY.

NOTES ON SOME NEW ROSES.

THE thought that is uppermost in my mind when I enter upon such a subject as this, is the immense change that has taken place in the last forty years. Once, whenever we thought of new Roses, they were those which were produced by our neighbour across the Channel. We had, it is true, a few which were of such excellence, that they retain their place in our catalogues now: for example, Beauty of Waltham, introduced just forty years ago; Devoniensis, older still, for it was brought out four years before; and John Hopper, which for a long time held a prominent position as one of the best of our early blooming Roses, and is now worthy of a place in our gardens, not only for "auld lang syne's sake," but also because it is an admirable decorative garden Rose. These are examples of what I mean, but their numbers are very limited.

In those days, with what feverish anxiety we looked for the announcement of new Roses from France! and what bitter disappointment was experienced by those trade-growers who used to order a number of them, propagate them, and then find out that the great majority of them had to be consigned to the rubbish-heap! I remember, amongst others, was my dear friend, Ben Cant, whose memory I must always cherish as one of the best Rose growers, and certainly the best exhibitor, I have ever met. He used to order largely the new Roses brought out by Lacharme, Guillot, and others, and was always kind enough to send me his little manuscript book in which he used to enter their names and descriptions, the latter written by himself after he had given them a fair trial. Too often the descriptions of the raisers, in which the superlative adjectives were used without stint, were misleading, for they were all "magnifique," "superbe," "hors ligne," &c.; but now I think comparatively few are much interested in the announcements of French raisers.

Of hybrid perpetuals, we seem to have drained the well nearly dry, and it is only amongst the Teas and hybrid Teas that we get anything worth retaining; and certainly such Roses as Maman Cochet, White Maman Cochet, Ernest Metz, Souvenir de Catharine Guillot, lead us to cherish a hope that we may still look for some valuable additions in the Tea and the Hybrid Tea class. But as I have said, it is to our home raisers that we must now chiefly look, and it is only justice to the late Mr. Henry Bennet to say that this change was mainly brought about by him; he undertook the systematic crossing of Roses. Like most enthusiasts, he could see no defect in any of his productions, and consequently made mistakes in bringing out in the first year some, which, I think, have now passed into oblivion. But he was on the right track, and soon produced flowers which for a long time held, and will hold, their place; for what Rose grower could do without Mrs. John Laing, Her Majesty (despite its tendency to mildew), Capt. Haywood, and Lady Mary Fitzwilliam, some of which have been used as parents for many new Roses. Mr. Bennet gave his productions the title of the "Pedigree Roses," which was rather misleading, for I take it that pedigree implies the tracing of descent through some generations; but it answered his purpose, and everybody knew what he meant, and that the seed-vessels were not gathered haphazard as they used to be in the French nurseries.

The example set by Mr. Bennet was soon followed by some of our home growers. I do not say English, for I think one of the most successful has been the firm of Alexander Dickson & Sons, of Newtownards, Ireland; although they too have now an English establishment at Ledbury, in the county of Hereford. There are one or two advantages which we gain by this change, one being that we are no longer troubled by Roses that will not open, which was the case with some that were raised in the warm climate of the south of France; another being that we are able to see them before they are sent out, for the raisers are, of course, anxious to obtain one of the Gold Medals given by the National Rose Society for the best new Rose, which may either be a seedling or a sport.

Queen Alexandra.—I suppose that no Rose ever made such a *début* as Crimson Rambler; its history is, I believe, a curious one. It was sent home from Japan, and exhibited before the Floral Committee of the Royal Horticultural Society under the title of The Engineer. It was not recognised by the Floral Committee as a body, but one of its members, at any rate, thought better of it, and it fell into the hands of Mr. Charles Turner of Slough, who multiplied it rapidly, and sent it out under the name of Turner's Crimson Rambler. There was an enormous demand for it, and whenever you met a Rose-grower, the question was sure to come: "Have you seen Crimson Rambler?" It was at once seen that hybridisers would try to make use of it for their purposes; several did so, and among the most successful were Messrs. Veitch & Sons, of Chelsea, who crossed it with Rose multiflora simplex. They obtained a flower, Queen Alexandra, of a beautiful rich rose colour, with all the characteristics which made Crimson Rambler so effective. It has enormous clusters of blooms, sometimes nearly a hundred in number, and is a rampant grower and perfectly hardy; it was exhibited at the first Temple Show of the National Rose Society, and as it was named after our Gracious Queen, I have, as a loyal subject, placed it at the head of the list. Her Majesty is an ardent lover of Roses, and at once saw the beauty and capabilities of the flower, and as a pillar Rose it will hold a prominent place in our gardens. It was figured in the *Gardeners' Chronicle* for July 13, 1901, p. 27.

A firm which has, however, most successfully followed in Mr. Bennet's footsteps is, I think I may safely say without fear of contradiction, that of Messrs. Alexander Dickson & Sons, of Newtownards; this firm has beenawarded fifteen Gold Medals by the National Rose Society for new Roses, and surely deserves the merit of being one of the most successful producers of novelties that we have. They are still carrying on their work, and I am assured by that most competent judge of Roses, Mr. W. J. Grant, that they have a very large number of seedlings, many of which he thinks will come forward as claimants of what we may call the "blue ribbon" of the Rose world. The following are announced as their newest productions:—

Alice Lindsell (*H. T.*).—A Rose evidently of great merit, the colour creamy-white, with pink centre; the form excellent, petals round and firm, while the habit is vigorous and branching. It blooms freely throughout the season, and is especially good in the autumn.

Edith D'Ombrain (*H. T.*).—A very distinct, superior Rose, of imbricated form, somewhat in the shape of A. K. Williams; colour white, with an occasional tinge of pink. The blooms are carried on stiff, erect stems; it has beautiful deep green foliage, and every shoot is crowned with a flower-bud.

John Ruskin (*H. T.*).—A highly coloured and well formed Rose, and a great addition to the class, very sweet scented, and flowering all through the season; a good autumnal bloomer. It was originally sent out as Janet Scott, and was exhibited in all the leading stands last season.

Ards Pillar (*H. T.*).—This firm has already given us a good Pillar Rose of high colour in Ard's Rover, but it is surpassed by the present variety, which is of a deep velvety crimson; the

flowers being produced in great abundance, and oftentimes large enough for the exhibition stand.

Bob Davison (*H. P.*)—This will be a valuable addition to the class which has not many added to it of late years; it is a flower of perfect form, the colour is dazzling scarlet, shaded crimson, a vigorous grower, and of erect branching habit. It does not require any disbudding, as the flowers are borne singly on each shoot.

The confidence with which we have welcomed Roses sent out by this firm will in no ways be diminished by these additions. *Wild Rose.*

(*To be continued.*)

NEW OR NOTEWORTHY PLANTS.

EPIPHYLLUM DELICATUM,
N. E. Brown (*n.sp.*).*

THIS pretty novelty is very similar to the wel known E. truncatum, but differs in the following particulars. It is more erect in habit, the branches are more strongly toothed, the flowers are larger, very different in colour, more regular, less oblique at the mouth of the tube, with longer and less reflexed petals; the tube of the corolla and the style are less abruptly bent at the base, and the recurved processes at the apex of the short staminal-tube are only about half as long as they are in E. truncatum. It was imported from Brazil by Messrs. William Bull & Sons, of Chelsea, and was exhibited by them at the meeting of the Royal Horticultural Society on Nov. 18 last, as recorded in this volume of the *Gardeners' Chronicle*, p. 382.

FIG. 140.—EPIPHYLLUM DELICATUM: FLOWERS WHITE FLUSHED WITH PINK.

* *Epiphyllum delicatum*, N. E. Brown (n. sp.).—Plant similar to E. truncatum, but more erect in habit; segments of the branches, 1½ in. to 2 in. long, ¾ to 1 in. broad, flat, with a raised midrib, deep green, slightly shining, oblong, truncate at the apex, rounded at the base, with three to four acute teeth about 2 lin. long on each side, having a few minute bristles in their axils; flowers solitary, terminal, surrounded by some bristles at their base, white, tinted with delicate rose-pink at the base of the petals and on the tube; ovary ½-in. long, obconic, ¼-in. thick at the top, smooth, not angular, pale green; sepals recurved-spreading, the outer 2 to 6 lin. long, varying from broadly ovate to oblong, subacute, more or less tinged with greenish; the inner, 1 to 1½ in long, 4 to 5 lin. broad, oblong or lanceolate-oblong, acute; corolla tube about 1⅓ in. long, slightly curved, slightly widening upwards, and slightly oblique at the mouth (but not nearly so much so as in E. truncatum), where it is very conspicuously marked with an irregularly crenulate thickened ring of a bright carmine colour; petals 1 to 1¼ in. long, ½ in. broad, lanceolate or oblong-lanceolate, acute, very spreading or slightly reflexed; stamens collected in a bundle around the style, much exserted, the innermost series about 2¼ in. long, united at the base into a tube ¾ in. long, at the apex of which is a ring of minute incurved processes; the rest arising at different heights from the corolla-tube; filaments white, anthers pale yellow; style as long as the stamens, glabrous, bright carmine, stigma exserted beyond the stamens, 8-lobed, lobes subulate, bright carmine. *N. E. Brown.*

A VISIT TO JERSEY.

(*Continued from p.* 389.)

THE next place of visit was Highfield Nurseries, owned by Mr. A. Smith. Practically the whole of this estate is covered with glass, and comprises some 2,400 feet run. The chief specialties are early Peaches, Grapes, Tomatos, and Carnations. Not an inch of ground appears to be wasted. In the vineries there was a profusion of Alicante Grapes, but as the wood did not ripen satisfactorily last year, there was a shortage of fruit. The supporting walls of about 900 feet run were covered with Peach trees, from which large quantities of fruit have been obtained this season. The favourite varieties are Royal George and Bellegarde for earlies, with the Nectarine-Peach for a late crop. Picking the fruit was commenced early in the month of June. Pot Strawberries were a prominent feature, about 2,000 were under culture, many were already in bloom, and in a few cases fruit had began to form.

Nectarines were grown in large quantities. Lord Napier is the leading variety, followed by Elruge and Violette Hâtive. Tomatos were practically over, but they were reported to have yielded several tons in weight, Sutton's Maincrop and Stirling Castle were the leading sorts; disease had successfully been kept in check by efficient spraying. Nearly one million plants of Freesias, and Maidenhair Ferns in enormous quantities were seen. Early Melons are usually largely grown, but this year owing to the comparative lack of bright sunshine, the fruit did not set well. The manure employed is stable-dung, combined with desiccated blood and bone manure.

The next move was to the establishment of Mr. Fisher, at La Guillaumerie, where a specialty is made of Tomatos, about 24 tons per annum being sold. Some 16,000 to 17,000 feet of glass were on view. It is the practice of Mr. Fisher to grow Tomatos year after year on the same soil by means of suitable artificial manures. After the crop of one year is off, the soil is immediately prepared for the next, so as to get fruit for the early market in January. White Arums were grown in large quantity.

The party then proceeded to La Hougue, Grouville, where Messrs. Falle Brothers devote themselves chiefly to bulb growing, about 13 acres being used for this crop. The visitors were shown an immense stock of bulbs raised on the farm, many of which were pronounced of such a quality that they would compare most favourably with Holland-grown bulbs. In fact large consignments are yearly made to Holland. The beds were being prepared for the autumn planting; the soil is of a firm loamy texture, and it was stated that humus matter was of all things essential for successful culture. This was supplied by heavy dressings of farm-yard manure well incorporated in the soil. The object is to get a succession of blooms of the different varieties for the London market.

Some 5000 plants of Monarch Strawberry were seen in 32-pots; it is usual to produce this fruit seventeen to the pound weight. Tomatos were doing well; Large Red and Main Crop were the varieties most in favour.

The next place of inspection was Rozel Manor, which was unanimously voted a treat. The picturesqueness of the ancient chapel, dating back to about 1232, and the *coup d'œil* presented by the varied greens of Bamboo, Cypress, Scotch Firs, and other magnificent forest trees, with the Manor House in the background, was unique, and much admired. The gardens were found to be full of curious and interesting specimens of plants, gathered from many countries. The Melon-houses, ornamental Gourds, and the fine display of Cannas, Begonias, Calceolarias, and herbaceous flowers were also much commented on, it being remarked that everything appeared perfect of its kind.

The concluding visit of this interesting and enjoyable excursion was to La Chaire, Rozel Bay, the residence of Mr. C. A. Fletcher. The owner having left the island, the visitors were cordially welcomed by Mrs. Fletcher, who personally conducted them through the sub-tropical gardens, which cover the hillside, a visit to which is the desire of everyone who takes an interest in beautiful trees and plants growing under such unique circumstances.

Leading the way along many charming paths, Mrs. Fletcher escorted the party to each point of vantage, pointing out the finest views of the lovely valley below, and the fine stretch of the French coast in the distance. Then she dwelt *con amore* on the botanical specimens abounding on the hillside, such as the only known specimens in the Island of Jersey of Tillandsia gracilis, now more correctly known as T. procera, from Italy. The Blue Gum and the Eucalyptus from Australia, Cedars of Lebanon, and a bewildering variety of other rarities, with all of which the lady showed herself thoroughly familiar. A delightful group of Begonias were on view, many of the blooms being from 7 to 8 inches across. It seemed to be a credit to the Island to possess such a delightful and well-kept estate. *J. J. Willis, Harpenden.*

NOTICES OF BOOKS.

THOMPSON'S GARDENER'S ASSISTANT. New edition. (London: The Gresham Publishing Co., 34, Southampton Street, Strand, W.C.)

DIVISIONAL volume vi., and last, of this admirable work, revised and edited by Mr. W. Watson, Curator, Royal Gardens, Kew, is now before us. The contents consist of succinct articles on the various kinds of roots, vegetables, Gourds, tubers, pulse, and pot-herds, cultivated in gardens in this country, written by a gardener who has a wide knowledge of his subject. The matter is arranged in alphabetical order, so that as a book of reference the methods of cultivation of any particular plant can be readily found. In numerous instances the text is made the more intelligible by capital illustrations prepared from photographs.

In the chapters on salad plants of many kinds, of Celery and Celeriac (but we are not told that the last-named must be cooked before it is eaten), lengthy descriptions of the best methods of cultivation, and briefer ones of varieties are given, and these varieties include the best of the older and the newest.

In the case of the more important salad plants, such for example as Endive, Chicory, Lettuces, Lamb's Lettuce, &c., the notes are very good reading, as useful for the gardener of many acres as for the amateur with his modest patch of garden ground, which he often tries to convert into a lawn without much success; whereas if Lettuces, &c., were grown instead, his efforts would be rewarded with success, even in the suburbs of large towns.

The chapter on Mushrooms contains almost all that a would-be cultivator requires to know—from the preparation of materials to gathering the crop.

The Onion has a lengthy chapter all to itself, rather profusely illustrated, and to which a considerable descriptive list of varieties is appended. On reading this, we perceive how large has been the number for which we are indebted to France, Italy, Germany, Madeira, Portugal, the United States of America, Bohemia, and Tripoli.

There is a chapter of some length on Beetroots, in which we note that the purple or purplish-crimson Beets, viz., Red Castelnaudry and Short's Pinecapple, are stated to be remarkably good and well flavoured, a fact not generally known.

The chapter on Kales contains much useful information, as also those on Broccolis, Cabbages, Cauliflowers, and Brussels Sprouts, together with a sufficient note on club-root in Brassicas and its prevention. Of varieties of Cabbage, we are glad to find the delicious St. John's Day or Sprotborough included, but the still more toothsome Couve Tronchuda, or Braganza Cabbage, is unfortunately omitted, while the almost useless Chou de Burghley is mentioned.

In treating of Asparagus, we find the methods of English and French cultivators clearly indicated by word and illustration, so that the least well-informed person can easily understand them. In this contention Phillips' *History of Cultivated Vegetables* is quoted: "It is well known how much the Asparagus is improved in size since Gerrard's time (1597), and it might be still further improved if our gardeners were to import roots of this plant from the borders of the Euphrates, where it grows to an extraordinary thickness. Pliny states that Asparagus, which formerly grew wild, was in his time carefully cultivated in gardens, particularly at Ravenna, where it was grown so fair and large that three shoots would weigh a pound." The methods pursued by present-day market cultivators about London, at Argenteuil near Paris, and by the late Mr. Errington, are given pretty fully. Methods of forcing are likewise described at some length.

In writing of Beans, Vicia Faba, it is very properly remarked that Beans being gathered young, the manure applied should be of service to the plants at an early stage of their growth—a matter not always considered sufficiently by cultivators. Such manures are lime, marl, gypsum, superphosphate of lime, bone-dust, wood-ashes, and charred clay (ballast), which prove very beneficial to Beans on soils that have long received dressings of organic manures only.

The use of nitrogenous organic manures is not forbidden on such soils as are known to be deficient in fertility, a practice not without its uses, as we think, although opposed to the teaching of some present-day authorities on manuring, who regard the use of organic manures for Peas and leguminous plants generally as wasteful, if not actually harmful to the plants.

One of the longest chapters concerns the Potato as a garden crop; and trustworthy as is the teaching in every respect, we could have wished the writer to have been less conservative, and to have curtailed greatly his lists of varieties.

Besides brief calendarial directions for each department of a garden in each month, an excellent chapter on collecting, packing, and storing vegetables, there comes a very complete index of the matter found in the whole of the six sections of which the work consists. Taken as a whole, the work well maintains its position as the standard book on British Gardening.

CHILDREN'S GARDENS. By the Hon. Mrs. Evelyn Cecil (Alicia Amherst). (London: Macmillan & Co., Ltd.; New York: The Macmillan Co.)

THE attitude of a reviewer towards any book must be influenced by the intentions of the author and the spirit in which that book is offered to the public. Thus we need not suggest that the literature of gardening is already redundant, for the authoress has belief in the freshness of her information, and no doubt her readers will also find something new in these pages. Nor need we quarrel with want of breadth of treatment and with over attention to certain details of gardening in a book avowedly written for children. Children of a larger growth may also take pleasure in it, pick up a few hints, and revive a few memories. Here is much praise of gardening for children, and kindly counsel how to make the best of a small plot, and how to get profit for the mind as well as pleasure from its cultivation. We wish Mrs. Cecil would realise the merely figurative sense in which "Every seed that falls into the ground dies," for the very slightest amount of observation shows that the words could have only a limited application to the coverings of the seed and not to the living embryo plant within. Growth, action, energy, life itself, are all there; however apparently dormant the seed may be, the life processes are merely latent and their development is incessant, though the visible results appear to be the effect of change rather than of progress.

Our youngest gardeners may perhaps object to be so often reminded that they are children, but they will appreciate the author's friendly style of writing, her tales of her own youthful efforts, her pretty quotations and pleasing pictures. Under the headings of spring, summer, autumn and winter, they are advised what to do and how to do it, what flowers to grow, and how in homely phrase to "cut their coat according to their cloth," which probably is limited as regards size position, and so on.

"Now children," Mrs. Cecil concludes, "we have gone through all the seasons together, and I have told you much more than you can possibly remember . . . but all the comfort and advice I am going to give is to tell you just to try. Try to have even one plant in flower in each of the four seasons, then you will find in a little while you will be trying the next step, having one for every month." There is much more advice given to similar effect.

The winter section of the volume contains lessons in elementary botany, which we hope may lead young students to consult some of the many books specially devoted to the subject. There are other and pretty pictures in the book. We are rather surprised that Mrs. Cecil, herself a mother, should suggest that red lead powder, "poisonous to children," should be recommended to the little ones to use to preserve seeds from mice. Beyond this we have no remarks to make about the book, save to record our favourable impression of it, and to hope that it may find its way into the hands of large numbers of children of all ages.

THE FLORA OF THE LIVERPOOL DISTRICT, illustrated by drawings and photographs, edited by C. Theodore Green. (Liverpool: R. Marples & Co.)

We have, we admit, but little personal acquaintance with the Lancashire flora, and with that of Liverpool in particular; but having a pretty long experience of the "floras" of other districts—including in the term flora both the vegetation and the records—we can form a fair general idea of the book before us. Our impressions of it are mostly favourable. The admission of no fewer than 800 illustrations is an innovation for which all novices will be thankful, the more so because they are, making due allowance for their necessarily small size, spirited and faithful. The geology of the district, a most important factor in plant-distribution, is well treated by Mr. Fitzpatrick; whilst the climatal details, of equal or greater importance, are well handled by the Rev. J. C. Mitchell. It is a pity that gardeners cannot be induced to co-operate more often with the compilers of local floras. Their experience with hardy or half-hardy plants, and with different varieties of Pears and other fruit, would be very valuable in estimating the effects of climate on plants. Viola carpatica is new to us. The nomenclature is that of the eighth edition of the *London Catalogue*, and therefore, as some will think, old-fashioned. It would certainly have been better in the interests of the coming race of botanists to have given the more recently adopted names. But those who have grown up under the older system will not quarrel with the editor's conservatism. All will agree that he has issued a very serviceable and suggestive book.

REPORT ON THE GENERAL TRADES OF SOUTH AFRICA (excluding Engineering and Textiles). By T. Nicol Jenkin, Special Commissioner. With Special Tables, Appendices, and several Illustrations. (P. S. King & Son, 2 and 4, Great Smith Street, Westminster, for the National Industrial Association, Palace Chambers, S.W.)

ANY reliable information relating to South Africa is sure of a welcome just now, and the volume before us is especially acceptable owing to its official character. The part of the report that most concerns us and our readers is that relating to packing and forwarding goods in general, and horticultural items in particular. It is satisfactory to learn that, "Generally speaking, British-made articles are the best, the most substantial, enduring, and reliable;" though in the cheaper classes of goods we are losing ground. "Unquestionably the bulk of the trade is still British, partly because colonists have a fondness for goods from home; but this must not be relied upon, for competition is keen, and badly made and packed wares are sure to lose favour in the end. For instance, as regards seed Potatos, in which a large business is done, English producers have practically cut themselves off from the trade in some districts, notably, East London, because of the very bad packages they have shipped out. Last year, one of the biggest buyers cabled home for a thousand cases of seed Potatos; delivery was fairly prompt, the Potatos when packed were undoubtedly excellent, but the cases were second-hand, and had formerly been used for the importation of sugar, and were in bad condition. In consequence of indifferent packing chiefly, a great proportion of the seed Potato trade has gone to France and Germany." This is merely a sample of the manner in which inattention to detail is ruinous to British trade. The report deals with various industries (boot and shoe, hardware, cycles, photography, &c.), and has also chapters relating to such important matters as Packing, Shipping, Delivery, and the Condition of Capital and Labour in South Africa. The appendix contains useful tariffs and rates, and much practical instruction that intending traders would do well to mark.

MARKET GARDENING.

TOMATOS *v.* GRAPES.

CALLING on a good Norfolk market grower, one who, by the way, has a good local trade, which he serves by his own van, he assured me that with the double system of Tomato cropping, he found these more profitable than growing summer-grown Grapes in cool vineries. His Grapes, however, have to travel 100 miles to the nearest good market, and the bulk goes 300 miles north.

FICUS PARCELLII.

Until November 25 I was unacquainted with this Ficus. I was surprised to see as lovely plants in 3-inch pots on the market-stands of Messrs. Thos. Rochford & Sons. These plants were offered at 12*s.* to 18*s.* per dozen, and had been grown fairly hardy, though for a time they were under the Palms to lengthen the growth for quick marketing. The foliage is very striking, and has a variegation and colour effect all its own. It has the character of the better-class Marantas, but is far hardier.

SHRUB FORCING.

There are two special points of interest in the forcing of shrubs. First there is the great question of root condition when lifted, for either potting or plunging; this includes a due amount of moisture or water before putting into the growing quarter. Secondly, close attention is necessary, not only to the atmospheric moisture, but to syringing the plants twice or thrice daily, to encourage the buds to break. On these two matters far more depends than is generally believed. Growers well know that the root is first to commence to grow, but how can they do so if the ball is dry. *S. C.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM INSIGNE HOLFORDIANUM.

THE varieties of Cypripedium insigne, like the forms of Odontoglossum crispum, have special attractions for some Orchid collectors, and it is only when collections of them similar to that shown by Captain G. L. Holford, of Westonbirt (grower, Mr. Alexander), at the Royal Horticultural Society's meeting on November 19, are compared, that the full extent of the variation and the distinguishing features of the varieties can be fully realised. Then it can be seen that the forms are so numerous and so clearly defined that they admit of being divided into sections, the yellow varieties being placed under C. insigne Sanderæ, which still stands well in the front of its section. Then come the forms allied to the type; the varieties with much white, and with rose-purple spotting on the dorsal sepal, coming under the punctatum violaceum or Chantini division; the C. i. Bohnhoffianum class, in which the basal area of the dorsal sepal is uniformly coloured sepia-brown, and unspotted; and, showiest and largest of all, the C. i. Harefield Hall class.

To the last-named section belongs the fine Cypripedium insigne Holfordianum illustrated at fig. 141, from the plant shown by Captain Holford on the date previously mentioned. The upper half of the dorsal sepal is pure white, with a few rose-purple spots; the basal half greenish-yellow, with purple-brown markings; the broad petals are honey-yellow coloured, with an uniform brownish-purple reticulation; lower sepals whitish, with a few purple lines. Lip coloured like the petals, and tinged with brown-purple. It is a very distinct variety, and a fine addition to its class.

FIG. 141.—CYPRIPEDIUM INSIGNE HOLFORDIANUM.

DISA GRANDIFLORA.

Looking at the photograph of a wonderful specimen of this fine scarlet South African terrestrial Orchid, kindly sent by Mr. W. Kilfour, Edge Hill Gardens, Milltimber, Aberdeen, it seems difficult to realise that perhaps nine out of ten Orchid-growers, notwithstanding the exercise of all the skill they possess, fail to get anything like satisfactory results in cultivating "The Pride of Table Mountain." The plant photographed had fifty-four spikes bearing together one hundred and twenty-two fine vivid scarlet blooms, one spike having five of them. We have illustrated the species more than once, and have frequently had particulars and photographs of good specimens of it, but never anything approaching this. Probably neither under cultivation nor in a wild state has such a wealth of gorgeous flowers been seen in the species in a similar space to that taken up by this plant.

LÆLIA AUTUMNALIS.

Flowers of a form of Lælia autumnalis, sent by Bertram S. Ogle, Esq., Hill House, Steeple Aston, Oxford, are interesting. Mr. Ogle says that the plant was bought, freshly imported, as a natural hybrid between L. anceps and L. autumnalis, but it appears to be a form of the light-coloured, long-bulbed type grown ordinarily in gardens as L. autumnalis before the introduction of the larger and finer coloured L. autumnalis atro-rubens. The section has given some trouble to botanists, and the question is, whether many of the plants distributed as L. Marriottiana, L. Gouldiana, L. Eyermaniana, &c., are not local forms of L. autumnalis, for there seems to be less variation in them than there is in the widely dissimilar varieties of L. anceps. It has been suggested that L. Gouldiana is a natural hybrid of L. anceps and L. autumnalis, but there seems to be no more ground for that supposition than there is in the case of Mr. Ogle's plant, which in form is identical with L. autumnalis alba, and is probably from the same locality. In this section there is some resemblance in the flowers to those of L. furfuracea, which however is a distinct species, with generally one hard, rather upright leaf to the pseudo-bulbs.

Well defined hybrids, such as Lælia × Crawshayana and L. × Finckeniana, can readily be distinguished; but the suggested hybrids of the class referred to seem to have no reliable features to distinguish them from the older forms of L. autumnalis. This view, so far as he was enabled to judge, was taken by Reichenbach when describing L. autumnalis venusta. The well defined hybrids only appear as rare occasional plants; the forms of L. autumnalis referred to may be imported in bulk, each form true to its own locality.

CULTURAL MEMORANDA.

THE TUBEROSE.

On account of the pearly whiteness and the delicious fragrance of the individual blooms of the Tuberose—of which the spike of a well-grown plant contains from forty to fifty, and its easy culture, the Tuberose, looked at from a cut-flower and decorative-plant point of view, is one of the most highly prized and useful bulbous plants in cultivation. There are double and single varieties of this bulbous flowering plant, but The Pearl, a dwarf American variety, is the best to grow. As soon as the bulbs arrive, towards the end of December, a dozen, more or less according to the quantity required, should be potted-up at intervals of a fortnight up to the middle or end of May, so as to ensure a supply of flowers from May to the end of November.

In potting, rub all the bulblets off the sides of the tubers, and bury them in the best loamy soil at command, putting one tuber in each 3-inch pot, which should be plunged to the rim in a hot-bed, or a box filled with sawdust, and placed anywhere in heat near the roof-glass. Keep the soil fairly dry until growth begins, when it should be kept uniformly moist. Keep all suckers persistently rubbed off as they appear, to throw strength into the central shoot, and thereby promote the production of good spikes of flowers. When the latter are about 8 inches high, shift into 48 and 32-sized pots, keep close and moist until the flowers begin to open, syringing the leaves to keep red-spider from attacking them. When the pots are full of roots, doses of weak liquid-manure, or top-dressings of a good plant-food, immediately before applying clear water at the roots, will tend to the production of large spikes of well-developed flowers.

The Tuberose is a most valuable plant for the embellishment of conservatory, greenhouse, and rooms, and owing to the successional way in which the spikes of flowers open from bottom to top, the flowers are indispensable for the composition of button-holes, bouquets, and shoulder sprays, seeing that every flower can be turned to good account while fresh. The plant is most accommodating in its floral development, a dozen or two plants in flower at the same time yielding sufficient flowers daily for ordinary use. *H. W. W.*

LÆLIA ANCEPS AND ITS VARIETIES.

After many years' careful study of this beautiful Mexican Lælia, I have come to the conclusion that many of the so-called varieties of it are no more to be considered as its varieties than are the various sub-species, or so-called varieties of Cattleya labiata. L. anceps is to Mexico what C. labiata is to S. America; and in a smaller area, it is almost more variable, having a greater geographical range in ratio to the area covered, with the exception of the outlying C. Dowiana.

Typical Lælia anceps, of course, is analogous to Cattleya labiata—each has its albino variety; in anceps it is the "*true*" alba, commonly known as "Bull's alba." And here I may mention that there has never been any other "alba" in typical anceps; the variety known as "Worthington's alba" is exactly similar, for I have had them both in bloom together. Mr. Worthington brought his plant home from Mexico himself, but it is one and the same thing; its partly white and very pale varieties are Hilliana, Kienastiana, Leeana, Percivaliana rosea, vestalis (virginalis was only a plant of the true alba under another name, and is therefore but a synonym), Veitchiana, and Williamsiana.

Its coloured forms that have been named are rather numerous, but here I will only quote the more important and better-known ones—Barkeriana, Chamberlainiana, Crawshayana, Hardyana, Leemani, Mrs. de B. Crawshay ("morada" is but Spanish for "dark," and is therefore not a proper specific name, but is generally applied to the forms first imported by Cowan & Co. from a different locality from that from which the earlier importations came), Protheroeana, Scottiana, and Winniana.

Now we come to those that I do not consider varieties of typical L. anceps. I use the word "typical" to centralise the ordinary coloured anceps in the minds of my readers.

Amesiana, Ballantineana, Schrœderæ.—I will take these three first. They are all quite distinct from any other so-called forms of L. anceps, and are three distinct varieties of one species; and as Schrœderæ was the first to appear, precedence is given to that name.

Ashworthiana, Hollidayana, Simondsii, waddoniensis.—These I consider varieties of each other, and as Ashworthiana and Hollidayana appeared and were named upon the same day, I must define which has the stronger claim to the distinctive name. Hollidayana, as then shown by Mr. Sander, had a crimson blotch and lines in the tube of the lip; the other had slate-blue dots and lines, and as the slate-blue shade results from the elimination of the red, and again making a comparison to C. labiata, I must place Hollidayana as the "species," and the other three as varieties of it.

Schrœderiana is quite distinct in form, both of plant and flower, and being a white "species" with only coloured lines in the tube, we cannot expect any colour variation, except a pure albino, or an approach to it.

Sanderiana and Stella.—These two grow together, and hence we have the former with lightly marked lips, and the latter with lips just marked. The vegetative organs do not distinguish the plants, except that sometimes one fancies Stella is a more robust grower. However, I consider Sanderiana the "species," and Stella the variety.

Dawsoni.—This I consider is not a variety of typical L. anceps, but a local species, for every variety that I have seen has the same general form, though there is variation in it, as well as in the blotch on its lip. The idea that all Dawsoni plants have been grown from one plant is an error, for there were many more than one plant brought to this country.

In support of my re-arrangement and subdivision of L. anceps, I may state that no one conversant with the habit of bulb and leaf could mistake imported plants of Sanderiana for Hilliana (or English bulbs for that matter); also that Hilliana was found with, and has bloomed from importations of anceps, whereas Sanderiana was not. Again, Schrœderæ and Amesiana are quite distinct in habit from anceps, and though the latter appeared as a chance among anceps, that does not prove it is anceps. No one would say that Odontoglossum tripudians was O. triumphans if it turned up in an importation of the latter. There is great dissimilarity in the habit of Amesiana as compared with typical anceps.

Hollidayana again is quite different to Schrœderiana and Williamsiana, for it has more flask-shaped bulbs than either, and Schroderiana has a totally distinct form to Williamsiana, which grows with typical anceps, and is in all ways indistinguishable from it except by a pale green bulb.

I may be confronted with the argument of "you are not simplifying matters," but I think I am doing so, for if there is any justification of the present arrangement of Cattleya labiata, I consider Lælia anceps to be in an absolutely similar position, and to have long since needed re-arrangement and elucidation. Again, if Sanderiana is a variety of a species, how is it that there are thousands of the variety, and the majority are "as like as two peas in a pod." We have no thousands of any white variety of C. labiata growing together.

This re-arrangement will simplify nomenclature, which created a good many remarks when my variety of Amesiana appeared. It will now be simply L. Schrœderæ Crawshayana. I append a complete list to make my re-classification quite clear.

VARIETIES OF LÆLIA ANCEPS.

alba
amabilis
atrorubens
a'rosanguinea
Barkeri
blanda
Bradshawiana
Burberryana
Backhouseana
callistoglossa
Calvertiana
Chamberlainiana
Crawshayana
delicata
Fitchiana
Hilliana
,, gemma
,, rosefieldiensis
Hazelwood var.
Hardyana
highburyensis
holocheila
Horsmani
Juno
Kienastiana
Leda
leucosticta
Lombærdiana
Leemani
Lady Stanley Clarke
Mrs. de B. Crawshay
Mrs. J. Bradshaw
Measuresiana
Montiana
munda
obscura
Oweni
oculata
Percivaliana
,, acuta
,, Miss Lettie
Protheroeana
purpurascens
radians
Roeblingiana
rosea
rosefieldiensis
rubra
Scottiana
striata
Thompsoniana
Titania
vestalis
Veitchiana
venusta
Whiffeniana
Williamsii
Willsiana
Winniana

ALLIED "SPECIES."

Lælia Dawsoni
,, ,, pallida

Lælia Hollidayana
,, ,, Ashworthiana
,, ,, Crawshayana
,, ,, Simondsii
,, ,, White Queen
,, ,, waddoniensis

Lælia Sanderiana
,, ,, Stella

Lælia Schrœderæ
,, ,, Amesiana
,, ,, Ballantineana
,, ,, Crawshayana
,, ,, Theodora

Lælia Schrœderiana
syn. Hyeana.

de B. Crawshay.

LILIUM CANDIDUM.

IN fig. 142 is given an excellent illustration of the successful cultivation of this Lily, a species that is always admired, but one which occasionally causes considerable difficulty to the cultivator. The following letter, describing the culture afforded the plants shown in the photograph, will be read with interest:—

"I read Mr. Divers' note in the Coronation Number of the *Gardeners' Chronicle*, p. 422, in which he gave his experience of growing Lilium candidum, and I at once decided to have those rowing at Dingley photographed, and to send the photograph to the Editor, with a description of their treatment here. When I took charge of these gardens, on May 3, 1892, the walk shown in the photograph (76 yards long) was an ash path, and on each side were old neglected Apple-trees, 20 to 30 feet high, with a good spread of unpruned branches, rendering a large part of the kitchen garden useless for cropping. In the autumn I rooted up all the old trees, and after improving the impoverished soil, I planted some of the best dessert Apples (espalier), strong, clean, well-grown trees supplied by Messrs. Dickson & Co. of Chester. At a distance of 3 feet 6 inches in front of the Apple-trees I planted the Box-edging to path. The mass of foliage seen in photograph is that of an old Mulberry-tree, which stands about 58 yards from the gate. On September 3, 1900, I took out a trench each side of the path, 6 inches from the Box, and 15 inches wide, 12 inches deep, spreading a lot of the soil on the garden, adding to the rest a good quantity of accumulated soil from where Chrysanthemum-stools, Cucumber and Melon soil, &c., had been put, together with burnt refuse, leaf-soil, and road-grit, and mixed the whole together. For experiment, half of one side I placed in the bottom of the trench 3 inches of old decomposed cow-manure, and filled up the trench to within 6 ins. of surface with the soil, then placed the Lilium bulbs on and filled in. The remaining half of this side, and the whole of the other, I planted at the same depth, but used no manure; 200 bulbs up each side I thought should make a good show. Those that had no cow-manure sent up spikes this year 5 feet 6 inches to 6 feet high, with nineteen to twenty-five blooms on a stem; the others were not nearly so robust, and produced shorter spikes, smaller, and not nearly so many blooms. It is 6 feet to the angle of iron rod which supports wires seen in picture, some of the flowers were of same height.

"I found XL-All Insecticide the most effective remedy for keeping the disease in check, applied in the evening with an Abol syringe, one part of insecticide to twenty parts of water. *F. Clipstone, Dingley Gardens, Market Harborough.*"

FIG. 142.—A BORDER OF LILIES IN THE GARDENS OF VISCOUNT DOWNE, DINGLEY PARK, MARKET HARBOROUGH.

ENQUIRY.

BEGONIA GLOIRE DE LORRAINE. I should be glad of any references to publications concerning the diseases of this plant, whether in French, English, or German. *W. B.*

LEAF-MOULD FOR ORCHIDS.

AFTER several years' trial of well-sifted leaves and fibrous roots from the trees around which the leaves had accumulated, as a compost without addition for Orchids, I believe that under certain conditions it is equal to any, and better than many root mediums of a more complicated nature. But, like all other mediums with which I am acquainted, it has its failing, and that is, it is not sufficiently lasting.

Perhaps there are few who attempt to grow Orchids under such adverse conditions as we have to contend with here. Owing to the hardness of the water, sphagnum-moss will not grow, and for over five years we have discarded it altogether. Visitors have been sometimes surprised to see the compost of leaves with a bare surface.

It has not, however, been easy for us, as through watering and decay, the leaves soon waste away, particularly in the perforated pans, which in some cases have become almost empty, but the plants have continued to look healthy and well, with the roots clinging to the sides of the pans, and the base of the bulbs resting on a tiny portion of leaves at the bottom. In other cases the bulbs took legs, on which they stood with their feet in what remained of the leaves at the bottom, and looking the picture of health. It would therefore appear that if we pot Orchids in a leafy compost, they will afterwards grow healthy and strong, so long as the receptacles to which they cling are kept damp and in a temperature

and atmosphere suitable to their requirements The getting of Orchids established, and keeping them so, are probably the most essential points in their culture. To have them established on the sides of pots only, is not the most practical way of going about it, and therefore leaves will be less used by me in the future if I can meet with something more lasting.

A friend writes to say he has used virgin cork along with the peat and sphagnum, and that the roots take to it freely. No doubt this is a lasting ingredient, and if the peat and sphagnum were as lasting, I would advocate the compost as satisfactory. Many years ago I remember cork was used on the back wall of a stove, and Dendrobium nobile established itself on it quickly, and made splendid growths and flowered freely. I visited a collection of Orchids a few days since, and some Cattleyas were established in the branch of a tree, which the owner told me were more satisfactory than any of the other plants in the house, and there were many, so that it would seem that the atmospheric conditions of an Orchid-house are alone necessary to Orchids, so long as they have something to cling to, and an intelligent man to look after them.

But the question may be asked, is it the man, the compost, or the house in which they are placed, that grows the healthy plants. Water, no doubt, plays a very important part in their culture, and as an Orchid-lover said, when telling me about having a superior all-round gardener who could not grow Orchids to perfection for the want of a little something which he could not explain, I agreed with him, there is a little something in many collections which the owners and their gardeners are hunting after. I am also riding hard in the chase, I had a mount on the orthodox mixture without much success, and leaf-mould wasted away inconveniently. I have now the red-wood (Sequoia sempervirens) bark on trial, and if that is not a success, why should we not gather all the queer-shaped boughs and trunks of trees and clothe them with Orchids, and turn our Orchid-houses into a a fairyland of rustic beauty? Let us try everything to catch that little something that makes Orchid growing a success and an Orchid-house a place to be admired, whether its occupants are dressed in their coats of sober green or have unfurled their banners of many colours.
J. Pentland, Ashwicke Gardens, Marshfield, Glos.

VARIORUM.

AN OPENING FOR SEED AND BULB MERCHANTS.—A despatch has been received at the Foreign Office from the Acting British Consul at Corunna reporting that a good market could be found throughout that Consular district for seeds, bulbs, tubers, &c. In the course of conversation with the Director of the Corunna Government Farm, the Acting Consul gathered that a market could be established with the United Kingdom. It would appear that the French horticulturists have introduced their seeds, &c., there with great success, and according to the views expressed by the Director it is owing to the manner of sending their catalogues in the Spanish language that orders have been secured. The Director stated that he had often been obliged to place his orders with French houses, not understanding the various catalogues which are sent to the Corunna Government Farm from British firms. All communications to that establishment should be addressed as follows:—Señor Ingeniero, Director, de la Granja Experimental, de la Coruña.

A GARDENER WITHOUT HANDS.—We learn from the *Essex Herald* that an exhibitor who is always very successful in the cottagers' classes at Romford Horticultural Shows, is Mr. Robert Brady, of Prospect Place, Romford. He won no fewer than ten prizes for vegetables at last week's Chrysanthemum show, an extraordinary achievement in view of the fact stated that all his cultivation has to be done without hands. Both of Mr. Brady's hands were chopped off at the wrists by a hay-cutter twenty-three years ago. The story of his successful, though extremely hard, battle with difficulties which would have crushed many another man ought to raise him high in the estimation of all who read it. He was fifty years old at the time of his misfortune. He was a thatcher and haybinder, and the loss of his hands unfitted him for this occupation, but it did not daunt his determination to earn his own living. He devoted himself to his allotment, and soon became so dexterous in the use of gardening tools that his patch gained the reputation of being the best kept in the district. He manages in a marvellous way to carry through all the processes necessary to thorough cultivation, but it will be easily understood that the work entails much more labour than would have to be put into it by a whole-bodied gardener. Mr. Brady has a brave heart still, but he finds the burden of years becomes more and more heavy.

The Week's Work.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

The Earliest Vinery.—The Vines which were started last month must be afforded at this date a temperature of 50° on cold, and 55° on mild nights, and 65° or 70° by day, the higher figure with sunshine, and Vines afforded air in the forenoon. If the shoots were ripened at an early part of the summer, they will probably break readily with a syringing once or twice a day, damping the paths, and keeping the vinery moist but not stuffy. Vines not previously forced early may be induced to break sooner than they otherwise would do if a bed of tree-leaves mixed with long stable-dung be built up on a wooden platform laid on the border inside the vinery, which should be turned over occasionally to liberate the heat and moisture. The outside border should be covered with dry tree-leaves 2 or 2½ feet thick, and thatched with straw, or covered with shutters of some kind. All outside borders of vineries and Peach-houses now being forced should have the soil removed down to a point where the roots become numerous, and a dressing of bone-meal and Thomson's Vine-manure, and a 2-inch layer of fresh turfy-loam laid over them, most of the soil should be returned, and a mulch of short stable-manure applied; the border should then be covered with tree-leaves, &c., as in the case of the Vine-border.

Vineries to be Started at the New Year.—Push on with the cleansing of the Vines and the structures, remove loose surface-soil from the inner border down to the upper body of roots, and apply turfy loam and Vine-manure as directed above. I may here state that it is a mistake to allow inside borders to become dry because ripe Grapes are hanging on the Vines, the Grapes keeping in better condition if the border is maintained in a moderately moist state. If the border on examination is found to be dry, afford it water copiously. If the Vine-roots are not in a satisfactory state, do what is needed to the outside border this year, and to the inside one next year.

Muscat of Alexandria.—These Vines, if the house is provided with an efficient heating apparatus, may be started early next month. A vinery at Dalkeith, planted with the Sprotborough Muscat Grape, was started last January, and Grapes were fit for consumption early in June, the berries being large, and of full Muscat flavour. This variety is a very sure setter, even if the temperature in the vinery fall to 65° occasionally on cold nights.

Late Grapes.—Where a proper place exists for the keeping of Grapes after they are removed from the Vines, Muscats and other Grapes which may have been ripe for several weeks are the better for being cut with sufficient length of shoot, and the latter inserted in bottles of water, taking care in doing so not to let the water touch the fruits. The Vines may then be pruned forthwith. The Grapes being removed from the Vines, the vinery may be used for Chrysanthemums, or plants needing but little warmth, and the cleansing of the house and of the Vines may be proceeded with. If the bunches of Grapes must remain on the Vines throughout the winter months, the inner border must be kept in a thoroughly moist state, and the surface covered with dry hay, bracken, or straw, and a cool, dry air maintained at all times.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Richardia æthiopica.—Plants for early flowering having filled the pots with roots, with spathes well advanced, may now be afforded a top-dressing of dried cow-manure mixed with loam in equal proportions, this will soon be seized upon by the roots; it should be not less than 1 inch in thickness. If this kind of manuring be not practicable, apply manure-water frequently. Provided growth is vigorous, it will be possible to hasten flowering by placing the plants in a maximum temperature of 55°. Any increase beyond this is injurious, and causes a thinness of texture in the spathes. The plants must not be crowded together, or deprived in any way of sunlight.

Lachenalias.—These may now be taken out of the cold frames, and placed in a light position in the greenhouse near the glass, bearing in mind that the plants are impatient of artificial heat, and are never so good and strong as when allowed to come on slowly in a light house or pit from which frost is merely kept out.

Herbaceous Calceolarias.—Forward plants likely to become pot-bound in two months' time, if sufficiently advanced, may be potted forthwith, so that they may put forth roots into the fresh soil at once. A suitable mixture consists of very sandy loam and decayed cow-manure. In potting, care should be taken that none of the leaves get bruised or broken, and that the soil is firmly placed around the ball. The latter should be in a sufficiently moist condition as to need no application of water for a week or longer after repotting.

Anthurium Scherzerianum.—Strong plants will be rooting freely, a condition of things that has a great influence on the production of spathes in the on-coming season. Roots that are running freely should have some pieces of turfy-loam and peat pegged on to, or around them. Keep the air of the house moist, but let the leaves remain dry, except now and then on a bright morning, when, if the day promises to be fine, they may be lightly syringed. I find a night temperature of from 55° to 60° better than the high one generally afforded, and this applies not only to the winter season, but to all seasons when the outside temperature is not higher than that mentioned.

Gloriosa superba.—The tubers now resting may be packed away in their pots in a part of a warm house where they will not get wetted, and remain there till the season for repotting returns.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Celery.—Take advantage of fine weather to finish the earthing-up of the rows of the later Celery. Pack the soil securely around the plants, and of sufficient thickness with the aid of bracken, to keep out ordinary frosts.

Turnips.—It is no longer safe to leave the roots of Snowball, Veitch's Red Globe, and other half-hardy varieties in the ground. All roots of a serviceable size should be lifted, and put into small clamps placed on the north side of a wall; a supply of roots for present requirements being put into the Potato-cellar. Where this method is adopted, the floor of each clamp should be raised above the natural level with road-sand or similar material, and the clamp covered with straw to keep out frost. Sheets of corrugated iron may be employed to throw off rain and snow. Turnips which have to be kept till the spring must be covered with soil, 3 or 4 inches thick, as well as

straw. The goodness of the Turnip begins to decline as soon as the roots are lifted, hence the importance of leaving them in the ground as long as possible. Herein lies the value of Chirk Castle and other hardy varieties, which can be left in the ground till growth begins anew on the approach of spring.

Tarragon and Mint.—Lift the roots for forcing purposes in open weather, placing the former in pots, and the latter in boxes, and store till wanted in a cold pit or vinery.

Mustard and Cress.—Sow weekly or bi-weekly from this date onwards. The seeds germinate more regularly in the forcing-house than in one having a lower degree of warmth, and the boxes should be left therein till the seed leaves are well advanced, and then placed on a shelf in a cooler house where no syringing is practised.

Protecting Crops. — Parsley being in most places in daily demand, if no sowing was made on beds of soil in cold pits or frames, a skeleton frame should be placed over that which was sown on a warm border in July, and frame-lights got in readiness for putting over the plants when frost seems imminent. Failing spare lights, an oblong frame-work can be made with 4-inch by 1-inch deal boards, with one board down the centre on which felt or stout oil-proof canvas should be fastened with flat-headed ½-inch tacks. Such a covering may also be used for protecting full-grown Endive and Lettuce. Examine the quarters and borders planted with Veitch's Self Protecting, Sutton's Christmas White, and Snow's Winter Broccolis, lifting such plants as have heads turning in, and laying them in a sheltered corner of the garden, and protecting them further with branches of Fir, Laurel, &c., or garden-mats. If the main-crop of Carrots be left in the ground, place half-decayed leaf-mould about 1 inch deep over the soil; instead of leaf-mould, spent hot-bed or Mushroom-bed materials will answer as well, and need not be removed when the ground is dug. A portion of the crop of Leeks grown on the level should be similarly treated, so as to be come-at-able during frosty weather.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Pruning and Training.—This work is best carried on during mild weather, and the trees trained on walls, &c., should be the first to claim attention. Here, I always begin with the Morello Cherries, which are usually planted on northern aspects. Providing the trees were afforded the treatment advised in previous Calendars, very little pruning will now be necessary. Some gardeners loosen the trees from the walls, and cleanse and retrain the branches and shoots; but unless scale or black aphis still infest the trees or the walls, such work is unnecessary and tedious, especially when a tree occupies a space 24 feet by 12 feet, as do some of the Morellos at Bicton. It will suffice generally to remove dead branches and shoots, and re-adjust other shoots so as to fill bare spaces, bearing in mind that the Morello fruits principally on shoots of the preceding year, which should be laid-in thinly at full length. Those shoots that bore fruit in the past summer, if there is a young one to take their place at the base of the former, may be removed. The Morello also bears on spurs, which should be cut back just beyond the point to which they were pinched last summer, and endeavour made to keep the spurs close to the wall. Sweet Cherries bear mostly on spurs, and require the same treatment as the Morello as regards the shortening and training-in of the leading shoots where space admits. Make use of no more shreds or ties than are actually necessary to keep the shoots in their proper places, and be sure that space enough be left in the fastenings for the natural increase of girth. Standard or pyramid trees require but little pruning when once they begin to bear, but the head should be kept fairly open, and no branches allowed to cross each other.

The Plum.—Similar remarks apply to Plum-trees as regards the standard form of tree. Those trained against walls fruit chiefly upon spurs, which are formed by pinching the young fore-right shoots in the summer months, and on shoots of the preceding year, laid in during the summer. Natural spurs, that is, short stubby growths that required no pinching in summer, will have formed blossom-buds, and must not be shortened, but those pinched should be cut back just below the laterals formed after the summer pinching. A few of the oldest and longest spurs should be cut hard back each year. Extension shoots need not be shortened, unless of great vigour, or shoots are required for fully furnishing the wall. Such shoots may be cut back to about half their length—a matter that should have been mentioned when treating of the Cherry. After cleaning up the prunings, &c., the trees may be syringed with "Abol," ½ pint to every 3 gallons of water, or Bentley's Quassia Extract at the rate of ½ pint to 4 gallons of water.

The Fig.—In localities where it is necessary to protect the Fig from frost, the required materials should be put in readiness, so that they may be applied without loss of time when severe weather threatens. In some parts of the country a covering of mats answers the purpose, but in the North thicker coverings are demanded.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Herbaceous Plants.—The present mild, open weather affords an opportunity to lift, divide, and replant many species of herbaceous perennials in borders and beds, among them being perennial Asters, very valuable plants for the parts of a border or bed remote from the path, and for cutting. My experience with these plants is, that finer flowers and larger flower-spikes are produced if the plants are replanted annually, provided liberal treatment be afforded them in the form of well-rotted manure, charred garden refuse, and new soil placed about the roots. Helianthus, when planted in clumps, are more satisfactory if they are replanted annually, care being taken to plant them in places suited to their height and vigour of growth. Gaillardias, which are simply invaluable for cut flowers, retaining as they do their beauty for a long period of time after being gathered, and the blooms appearing in profusion from July to November, if set out at this season in bold groups towards the fronts of beds and borders, cannot fail to produce a pleasing effect. The improved forms of the Delphinium are likewise noble plants; and if replanting be unnecessary this year, the clumps should be top-dressed with cow-manure. The plants pay for liberal treatment now and during the season of growth. Herbaceous Pæonies, the most stately of garden flowers, are better if left undisturbed at the roots for a number of years, but they require to be liberally treated in the matter of manurial top-dressings, and the present affords a suitable season to attend to them, as well as for making plantations of imported plants. The stations or beds should be prepared by being heavily manured, and trenched 2 to 3 spits deep. Pyrethrums are the better for being lifted and replanted once in two or three years; and of shrubby varieties Phloxes, effective in the mixed border and in large groups by themselves, merit better treatment than is sometimes accorded them. Cuttings or suckers taken early in the autumn, will now be sufficiently well-rooted to plant out; and a surface mulching of manure placed over the clumps after they are planted will act beneficially, and make them safe for the winter. Besides these plants, there are Heucheras, Dictamnus Fraxinella, Lychnis in variety, Veronicas, and others which go to form an "herbaceous border," may be planted or transplanted at this date, if mild weather should continue.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Cymbidiums.—Plants of C. Traceyanum and C. giganteum, now generally in flower, should be placed where light and air may reach them, no water being allowed to touch the flowers. Water should only be applied at the root when the materials have become moderately dry. C. × Winnianum, whose flower-spikes are now in course of development, should be allowed to become rather drier than the foregoing species, before applying water during the winter months. C. eburneum is perhaps the most difficult of all the Cymbidiums to keep in good health in the winter; and it is advisable to let the compost get fairly dry before affording water, and then in quantity only enough to moisten it throughout. C. Hookerianum requires similar treatment; C. Devonianum should be either suspended or raised on a stand clear of surrounding plants at the warmer part of the cool intermediate-house, and in full sunlight, and sufficient water afforded as will keep the plant from shrivelling. C. × Lowio-eburneum and the reverse cross, now showing flower, should be allowed to become rather dry at the root before water is applied, more especially in the case of C. eburneo-Lowianum, which generally has more of the character of C. eburneum, and makes less vigorous growth than the reverse cross. The most popular Cymbidium is C. Lowianum and the beautiful yellow-flowered variety C. L. concolor, the flower-spikes of which are now showing. Any plants of strong growth which refuse to flower satisfactorily may now be afforded a rest by withholding water to a great extent, which will often have the effect of causing an obstinate plant to flower better. Plants which are bearing a fair number of flower-spikes, and plants which it is not intended to flower this season, should, providing they are well rooted, receive as much water as will keep the compost moist. Cymbidiums potted in peat and sphagnum as the chief ingredients require more water in order to keep them in good condition. My advice is intended for those who make use of a compost consisting of loam and leaf-soil, as advised in the Calendar for June 7 last, for the roots such plants make being so much more fleshy than those of any other, are enabled to afford the plant its requisite nourishment when the compost has become dry for a longer period than those potted in less retentive materials. Cymbidiums generally are of easy culture, providing their quarters are suitable; yet plants that have flowered abundantly, or those on which the flower-spikes remained for a long period of time, or such as have been divided and have not made growths equalling those of the previous year, should be afforded a rest by pulling out all of the flower-spikes.

A GOOD EXAMPLE.—An instance of that practical generosity, characteristic of the ROTHSCHILD family, has just been set up in the Right Hon. Lord ROTHSCHILD's gardens at Tring Park, where the Hon. WALTER ROTHSCHILD, M.P., has had one side of one of the garden offices fitted up to receive the whole of the horticultural and botanical division of his extensive scientific library, in order to have it available at all times, and without any formalities, for the use of the young men employed in the gardens. Mr. ROTHSCHILD has remarked with pleasure that there is an increasing desire among the more intelligent of the young men to consult standard works of reference, and he has always been glad to place the books at their disposal. And now to simplify matters, he has placed the priceless treasure within their reach at all times, the only restriction being to apply to Mr. E. HILL, the gardener, for the books required. The library comprises all the best and most valuable works, including CURTIS' *Botanical Magazine*, 124 vols.; the *Gardeners' Chronicle*, from January, 1841, to the present time; *Lindenia, Orchid Album, Reichenbachia, Paxton's Magazine of Botany*, 14 vols.; *The Royal Horticultural Society's Journal and Transactions*, from the first; *The Orchids of Mexico and Guatamela, The Monograph of Masdevallia "Pescatorea," Warner's Select Orchidaceous Plants, Loddiges' Botanical Cabinet*, 20 vols.; *Lambert's Genus Pinus, Müller's Atlas of Australian Eucalyptus*, and all other valuable works procurable. The shelves are arranged with sliding glass doors in front and polished wood backing, and every precaution taken to prevent injury.

APPOINTMENTS FOR THE ENSUING WEEK.

TUESDAY, DEC. 9 { Royal Horticultural Society, Committees, Meeting.

SALES FOR THE WEEK.

MONDAY and WEDNESDAY, DECEMBER 8 and 10—
Bulbs, Shrubs, &c., at Stevens' Rooms, at 12.30.

MONDAY to THURSDAY, DECEMBER 8 to 11—
Dutch Bulbs, by Protheroe & Morris, at 67 & 68, Cheapside, E.C., at 11 A.M.

MONDAY to FRIDAY, DECEMBER 8 to 12—
Bulbs, &c., by Pollexfen & Co., Pilgrim Street, Ludgate Hill, at 12 30.

MONDAY, DECEMBER 8—
Clearance Sale of Lilies, at Stevens' Rooms, at 2.30.—Specimen Palms, at the Aireville Nursery, Frizinghall, Bradford, by Protheroe & Morris, at 11.30.—Lilies of the Valley, by Johnson, Dymond & Son, 12.

TUESDAY, DECEMBER 9—
Lily of the Valley, by Pollexfen & Co.—Outdoor Stock, Nurseries, Addingham, Yorks, by Protheroe & Morris, at 11.30.

TUESDAY and WEDNESDAY, DECEMBER 9, 10—
Broomfield Orchids, at Broomfield, Sale, Cheshire, by Protheroe & Morris, at 12 30.

WEDNESDAY, DECEMBER 10—
Orchids, Greenhouse Plants, &c., at Kidbrook Lodge, Blackheath, by Dyer, Son & Hilton, at 12 noon.—Coniferæ and Evergreen Shrubs, &c., at Bridge Lane Nursery, Ilkley, Yorks, by Protheroe & Morris, at 11.30.—Azaleas, Palms, Roses, &c., at 67 & 68 Cheapside, by Protheroe & Morris, at 11.

THURSDAY, DEC. 11.—
Palms, Lilies of the Valley, &c., Pollexfen & Co.

THURSDAY and FRIDAY, DEC. 11, 12.—
Aucubas, Hollies, Fruit Trees, &c., at Ben Rydding, Yorks, by Protheroe & Morris, at 11.30.—Orchids at 67 and 68, Cheapside, by Protheroe & Morris, at 12.30.

SATURDAY, DEC. 13—
Nursery Stock at Rosemount Nursery, Ilkley, Yorks, by Protheroe & Morris, at 11.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —40 9°.

ACTUAL TEMPERATURES:—

LONDON.—*December* 3 (6 P.M.): Max. 44°; Min. 31°. *December* 4 (Noon).—Fine; frosty.

PROVINCES.—*December* 3 (6 P.M.): Max. 50°, Scilly; Min. 34°, Eastern Counties of England.

The Education Question.

ONE of the most generally interesting points in Sir WM. HUGGINS' address to the Royal Society on Monday last, was that relating to the imperative necessity for the extension of scientific education in this country if we are to maintain our commercial supremacy.

"Referring to the establishment of a National Physical Laboratory, the opening of which had taken place since the last anniversary, Sir WILLIAM described the work of the Physikalisch-technische Reichsanstalt, of Berlin, which was largely due to the scientific foresight of VON HELMHOLTZ. The original cost of that Institute was over £200,000, and its yearly maintenance was not less than £17,000. During the five years that it had been at work its influence upon the science and the manufacturing interests of Germany had been most remarkable. It was, therefore, with feelings of high satisfaction that he had to record the opening in March last of a similar national institution in this country. The sum voted by the Government for the physical laboratory, an institution second to none in its national importance, was the very modest one of £13,000 for the buildings and equipment, and an annual grant of £4,000 for five years in aid of the expenses of conducting the work of the institution. It was, therefore, 'to the liberality of the public,' as the Prince of WALES at the opening pointed out, 'that we must look not only for money, but also for presents of machinery and other appliances.'

"The supreme necessity in this country of a more systematic application of scientific methods, both in theory and in practice, to our manufactures and industries, which was so wisely insisted upon by the Prince of WALES on the occasion of his admission to the Fellowship of the Society, and again in his address at the opening of the National Laboratory, had since been confirmed and enforced in a remarkable way by the individual testimonies of thirteen Fellows of this Society in the evidence which they recently gave from their own knowledge and experience, either as teachers of science, or as leaders and technical advisers in manufactories or commercial undertakings, before a committee of the London Technical Board. The evidence seemed clear that the present inappreciative attitude of our public men, and of the influential classes of society generally, towards scientific knowledge and methods of thought must be attributed to the too close adherence of our older universities, and through them of our public schools, and all other schools in the country downwards, to the traditional methods of teaching of mediæval times.

"With the experience of Germany and the United States before us, the direction in which we should look for a remedy for this state of things would seem to be for both the teacher and the student to be less shackled by the hampering fetters of examinational restrictions, and so for the professor to have greater freedom as to what he should teach, and the student greater freedom as to what line of study and research he might select as being best suited to his tastes and powers. In the United States, the candidate for the highest degree, Ph.D., must spend at least two years, after obtaining his bachelor degree, in carrying out an investigation in the field of his main object of study, and then submit the dissertation which embodied the results of his research. One way of bringing about reform in this direction would be to make individual research an indispensable condition of proceeding to degrees higher than the B.A.

"The first steps in the direction of true reform must be taken by the universities in the relaxation to some extent of the established methods and subjects of their examinations, which had been carried down with but little change from the middle ages. It was some satisfaction to know that a new section of the British Association for the Advancement of Science had been formed for the consideration and discussion in detail of the reforms which were needed in the educational methods of the country.

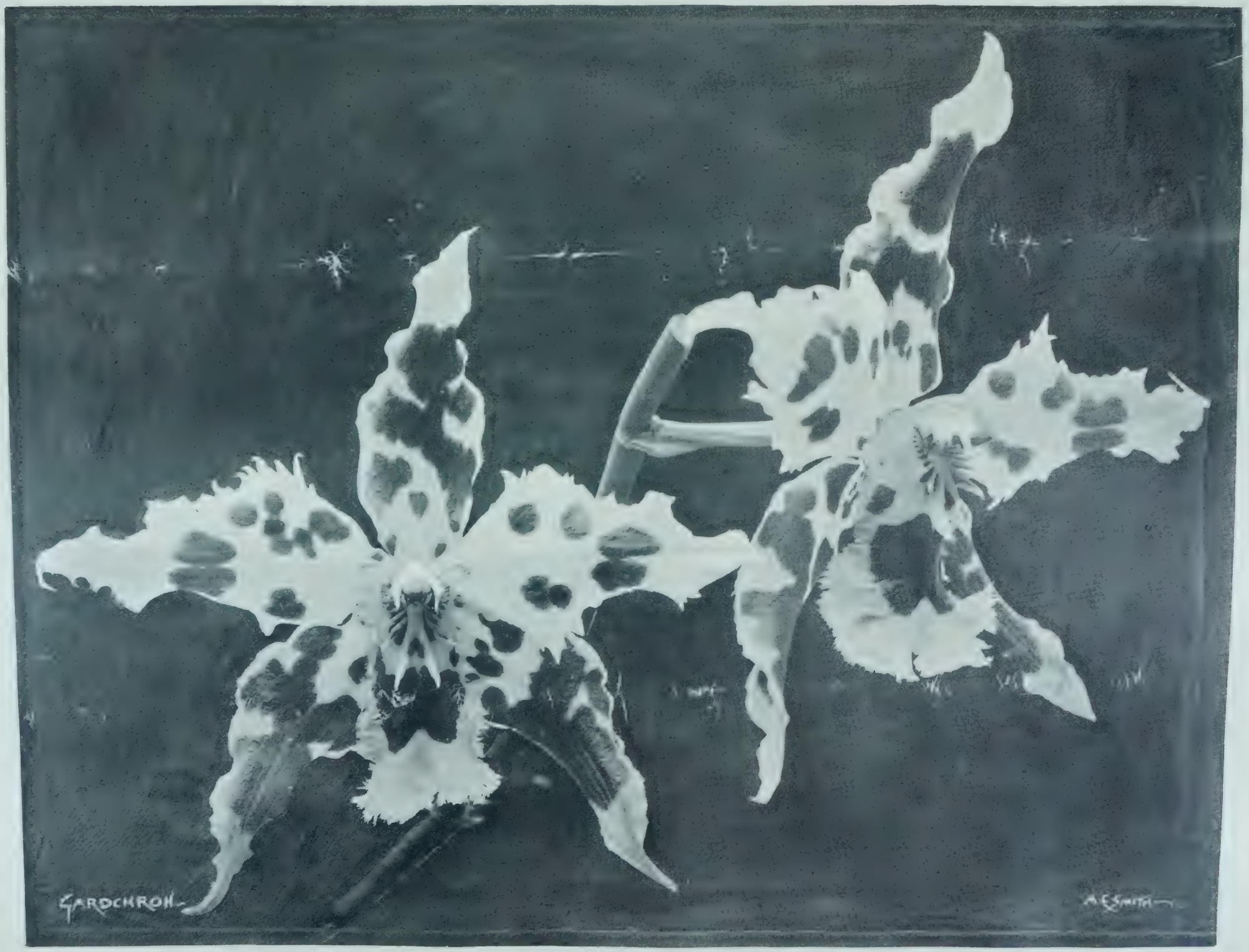
"In the meanwhile, much might be done provisionally by their Fellows, in their individual capacity, by stimulating and directing wisely the increased attention which was now being given to science in all departments of life, and especially in fostering and extending the many technical colleges and institutions which were being established in all parts of the country."

Lord AVEBURY, in a short speech that was not reported in the daily papers, urged upon the Council the necessity of taking practical steps to secure that English gentlemen should no longer be half-educated, and that their training should in future not be so exclusively conducted on classical and mathematical lines, but that science, and especially scientific method, should be insisted on in the curriculum of the universities. In so doing, said Lord AVEBURY, the Society would have the sympathy and assistance of the bankers and commercial men of the metropolis.

The Horticultural Hall.

THE plans for the proposed Horticultural Hall have now been before the public long enough to enable us to gain some idea as to the general feeling with which they have been received. No one now doubts the necessity of providing such an establishment. The need is so urgent, that any feeling as to the desirability of providing a new garden to replace Chiswick must needs be put on one side till the Hall is erected. Chiswick we have for several years to come—let us make the best of it. Hall, we have none—let us supply the omission, and at once. We have waited too long already. The present offices are utterly inadequate, and the Drill Hall is not only not large enough for the purpose, but is unsuitable in other ways, and destitute of those conveniences and appliances which are required by a large Society. All this is admitted. Not one per cent. of the Fellows who take any interest at all in the work of the Society, can hold a different opinion. Thanks to the public spirit of Baron VON SCHROEDER, a good start has been made. But a start is not enough, continuous effort is required if the project is to be carried out. That effort is not to be pushed to a successful issue by haggling over details. Of course, we should all like a noble building of fine architectural pretensions; but we have not the means to provide such a building, nor as we fear, are we likely to get the munificent sums which our American cousins devote to such institutions, neither can we look for any help from the Government. We must in consequence adapt our requirements to the means that are forthcoming. A dignified façade is after all of less importance than fitness to purpose. We all of us know of handsome buildings which are marred so far as their utility is concerned, by the ambition of the architect to produce something worthy of admiration from the point of view more particularly of those who have to look at, rather than of those who have to make use of, the building. Suitability to its purpose is thus often made a secondary, instead of a primary consideration.

Simplicity of design, harmony, and beauty of proportion are, however, happily quite consistent with fitness and relatively moderate expenditure. These facts will doubtless be borne in mind by those who are intrusted with the carrying out of the project, and many of the objections raised to the mean appearance of the exterior of the proposed Hall can be easily remedied. In the meantime, the pressing necessity is for funds. Until these are obtained in sufficient amount there is no use in discussing whether this or that design is the more pleasing to the eye. The real question to be faced is, can we have what we want at all? It would be too monstrous to suppose that the horticulturists of this country will allow the scheme so well inaugurated to fall through for want of their support. The action of the National Chrysanthemum Society in contributing to the fund is enough to contradict such an impression, if it ever existed. If every horticultural society, and every special society in the kingdom would, according to its means, help the parent society in this matter, and if every Fellow would, while retaining all his rights as a critic, send a handsome contribution to the funds, the Treasurer's anxieties would be at an end. We need not point to Boston, to Philadelphia, or even to Amiens, to which latter place we called attention recently. Circumstances are different, and the conditions which would apply in those cases might not be applicable to us; but we do remember—and the remembrance alleviates some of the humiliation we should otherwise feel—we do remember the noble work that has been accomplished by the Shrop-



ODONTOGLOSSUM WILCKEANUM, VAR. ROTHSCHILDIANA: PHOTOGRAPH BY MR. CHAPMAN.

shire Horticultural Society, and we feel that if such great things can be done by a local horticultural society, much more may be expected from the Fellows of the Royal Horticultural Society.

*** **OUR ALMANAC.**—According to our usual practice, we shall shortly issue a *Gardeners' Chronicle* Almanac for the year 1903. *In order to make it as useful as possible for reference, we shall be obliged if Secretaries of Horticultural, Botanical, and allied Societies, or any of our correspondents, will send us* IMMEDIATE INTIMATION *of all fixtures for the coming year.*

ODONTOGLOSSUM WILCKEANUM VAR. ROTHSCHILDIANA (Supplementary Illustration).—The subject of the illustration is a reproduction from a photograph taken in NORMAN C. COOKSON, Esq.'s garden, Oakwood, Wylam-on-Tyne, of the plant exhibited at the Drill Hall on September 2 last, when it was awarded a First-class Certificate by the Orchid Committee of the Royal Horticultural Society, particulars of which will be found in the *Gardeners' Chronicle* report of the above meeting, ante, p. 183. The plant has been in cultivation for many years, and like other natural hybrid Orchids, was mistaken for and included with Odontoglossum crispum, see *Gardeners' Chronicle*, 1890, i., p. 684; also xxi., N.S., 1884, p. 609. I believe it is also figured in the *Reichenbachia*, series 2, i., p. 47, t. 22. See also p. 694 in *Gard. Chron.*, for May 31, 1890, when a plant was shown by F. SANDER & Co. at the Inner Temple Show of the Royal Horticultural Society, held on May 28 and 29. It is interesting to record the appreciation given by present day Orchid specialists to a plant that has been in cultivation so many years. It is also a further tribute to the longevity of Orchids, where suitable conditions to meet their requirements are provided. The plant from which the illustration is taken, is sufficiently strong to produce two flower-spikes from the pseudo-bulb, one having fifteen, and the other (which was removed) had seventeen flower-buds, a fact which shows the great vigour of the plant. From particulars which I have been enabled to gather, it appears that Mr. COOKSON purchased the plant from Messrs. F. SANDER & Co., about twelve years ago. It has been grown in a lean-to house, having a north aspect, with the plants of Odontoglossum crispum, and it has not only retained its normal characteristics, but by division it has been increased as was indicated by Mr. J. O'BRIEN in previous issues of the *Gardeners' Chronicle*. *J. Chapman, Oakwood, Wylam, R.S.O.*

KING EDWARD VII.—The statue presented to the town of Reading by Mr. MARTIN SUTTON was unveiled on Wednesday last by H.R.H. PRINCE CHRISTIAN. The freedom of the borough was conferred on Mr. SUTTON on the occasion.

HORTICULTURAL HALL.—The schedule of the Pennsylvania Horticultural Society, a copy of which is before us, contains an illustration of the horticultural hall of the city of Philadelphia. No particulars are given, but the illustration shows a massive building of dignified appearance, in the Italian or Romanesque style. As no plans are given, we are unable to form any opinion as to its suitability for the purpose for which it is intended.

A PINK-FLOWERED PHILADELPHUS. — The *Moniteur d'Horticulture* for November 10 contains a coloured illustration of a new Philadelphus, raised by M. LEMOINE of Nancy, with large star-shaped, four-parted flowers, the white petals of which have a rose-coloured blotch extending from the base nearly to the middle of each petal. It is stated to be the result of a cross between P. Lemoinei ×, and P. Coulteri; P. Lemoinei itself being a hybrid between microphyllus and coronarius.

NEW BOOKS.—Among the new publications "awaiting their turn" are Mr. W. P. WRIGHT'S *Pictorial Practical Rose Growing*, a handy book for amateurs; Mr. SANDER'S *Amateurs' Greenhouse*, M. BALTET'S *La Pepinière*, Mr. E. T. COOK'S *Trees and Shrubs for English Gardens*, a book much in request; *Ootheca Wolleyana, The Forests of Upper India*, by T. W. WEBBER; *Minerva a Jahrbuch der Gelehrten Welt*, and others; for a fuller notice of which we hope shortly to find space.

DWARF ANNUAL PHLOXES.—The *Revue Horticole* has an article and an illustration devoted to the development of a new race of Phloxes. They are the offspring of P. paniculata, but in place of being perennials, M. LEMOINE has succeeded in raising a race of dwarf annual varieties. The seeds are sown in pots, in rich light soil, in October and November. Germination takes place in April, and the seedlings are pricked out. A second transplantation is made about three weeks afterwards, and flowers are produced in July, and continues till the advent of frost. M. PH. DE VILMORIN'S interesting note on their cultivation should be read by all concerned.

AMERICAN CHRYSANTHEMUM SOCIETY. — The first annual meeting was held at Chicago on the 12th and 13th ult., and proved a success. The Society was founded at Buffalo in 1889, but it was not till this year that a "Convention" was held. Mr. HARMAN PAYNE contributed a paper on "American Chrysanthemums as seen in England." It is evident, however, that we must hide our diminished heads if what one of the speakers is reported to have said be true: "We will do what we have done in a good many other lines. It will be the United States first, and the rest of the world nowhere." Considering that we poor Britishers had the start, and that so large a proportion of U.S. gardeners are of British origin, we hardly think the States can claim to be first in this particular. The contest should be for precedence, not in time, but in quality! (See also p. 418.)

EFFECTS OF GRAFTING. — In the *Comptes Rendus* for September 22, we find a note by M. LUCIEN DANIEL, on a modification produced in Scopolia carniolica by grafting it on the Tomato. The author remarks that it is already known how, by certain processes, some plant characteristics can be modified, and particularly, that the flowering season may be advanced or retarded by heat. "Further," writes M. DANIEL, "by sowing out of season, a plant may be induced to flower at an unusual time. By the entire suppression of the blooms as they appear, an annual plant is turned into a biennial, if sheltered from winter cold (Reseda). On the other hand, certain perennials with annual herbaceous aërial stems, sometimes retain through the winter certain of these stems, which thus become truly perennial. And yet again, by hybridisation, in some plants the continuously flowering habit is obtained, that is they flower and fruit twice in the same year (Rose, Strawberry, &c.)." In order to ascertain what part grafting may play with regard to such modifications in the habits of plants, M. DANIEL has for a long time been making experiments on this subject. In 1892 he demonstrated that, apart from precocity or lateness in the blooming of the graft, it was possible by direct grafting or by sowing seed after grafting to distinctly alter certain habits of the graft. Thus he caused some biennial specimens of Salsafy to become perennial by grafting them on Scorzonera, and annual Tobacco was made to become biennial by grafting it on the Tomato. But in this case, it must be understood, the stock did not flower in the same year that it was grafted. From seedling plants of black Belgian Haricot grafted upon Haricot de Soissons gros, he raised a race of climbing Haricots which now are almost constant. But, so far as his experience goes, there has been no former description given of any plant that has assumed the climbing habit as a consequence of grafting, or a single instance of a herbaceous plant regaining life and vigour consequent upon grafting. This year he certainly observed these two varieties of phenomena consequent upon grafting Scopolia carniolica on young plants of Tomato. Scopolia carniolica is grown in botanic gardens as a herbaceous perennial, and is one of the most precocious in spring. After fruiting the aërial stems keep green for some time, withering gradually and remaining quite faded during May. The Tomato, on the contrary, is then starting and grows vigorously. Although these two plants are both Solanaceous, they belong to two different groups; the former to the Hyoscyameæ; the second to the Solanums. On May 1 last, M. DANIEL grafted on to the young Tomato, the aërial shoots of the Scopolia that were about to wither. The graft succeeded, and in spite of the age of the grafts, and in spite of their spring-flowering, they recommenced life, put forth new buds, and then leaf branches, that are still green and fairly vigorous. Further, one of the grafts actually formed an inflorescence which bore three normal flowers. The fruits formed as in spring. These experiments lead to the following conclusions: (1). Similarity of habit between stock and graft is not absolutely essential to successful grafting. (2). The aërial stems of Scopolia can be regenerated when senile decay seems near, by grafting them on young and strong Tomatos. (3). Modified grafting often greatly alters the habits of plants, and in the Scopolia may cause a second blooming season in the year; that is to say, to give the plant a "perpetual habit."

THE BUREAU OF PLANT INDUSTRY.—The Bureau of Plant Industry, which was organised July 1, 1901, in connection with the United States Department of Agriculture, includes vegetable pathological and physiological investigations, botanical investigations and experiments, grass and forage plant investigations, pomological enquiries, and gardens and grounds, all of which were formerly independent divisions, and also seed and plant introduction, the Arlington Experimental Farm, Tea-researches and experiments, and the Congressional seed distribution. Beginning with the date of organisation of the Bureau, the independent series of bulletins of the division of Agrostology, the last number of which was 25, and also of the other divisions, were discontinued, and all are now published as one series of the Bureau.

NEWFOUNDLAND.—At the instigation of Dr. BRITTON, of the New York Botanical Gardens, a botanical expedition has been instituted to the island chiefly for the purpose of studying the seaweeds, but also of investigating the land flora. Newfoundland is not all treeless, as the public has been led to believe by historians who have merely sailed along the eastern and southern shores, or landed at Port-aux-Basques. At this port and at Channel, the sole post-office of the region, there are no trees, but plenty of curious, dwarf, semi-prostrate Firs, Spruces, and Alders, are found on some hillsides. Newfoundland is generally covered with granite and coarse rocks. The soil is scanty, but very rich. The plants most prominent are Sedges, Ericaceæ, the northern limits of familiar Heaths, southern limits of sub-Arctic types and familiar flowering types. Among the "mountains" of the western shore are forests of sizeable timber, such as Spruce, Fir, Tamarack, yellow and white Birch. There are also occasional white Pines and black Ash. The interior entirely corrects the impression that Newfoundland is treeless, as the numerous lakes are surrounded by forests, notwithstanding the denudations by railway fires. At Humber River and Deer Lake are striking displays of the tall Fireweed (Epilobium). Many

delicious berries were found in use in Newfoundland wholly unknown to the United States, and which should be introduced to the markets. The Bake-apple, or Bake-apple berry, has an excellent flavour in pie or sauce. The mountain Cranberry, or Partridge-berry, is superior to the Cranberry, and is gathered in large quantities. The Squash-berry is palatable when cooked; the creeping Cranberry, or Snowberry, is the special delicacy of the country when preserved. At Halifax, the higher plants found were such as the Asters, Solidagos, and other Compositæ. Halifax and vicinity are represented as a botanist's paradise in the matter of the great variety and enormous size of the seaweeds.

FRUIT AND VEGETABLES FOR THE NAVY.—At the close of the Crimean War, large supplies of returned or unused stores [of compressed vegetables were sold by auction] in London, and put upon the retail market for general consumption. The cakes of provisions were a sort of conglomerate, and after much boiling and other manipulation, yielded nothing tempting or satisfying to the consumer—one of whom was the present correspondent. But the authorities have ever been willing to learn, and the Lords of the Admiralty have been to the front here, and trials have been made at Portsmouth on the daily diet of the man-of-wars' men. The experiments are with preserved fruits and vegetables; and the reports just sent in show that French Beans are said to be equal to those fresh from the field, whilst Spinach is stated to turn out gritty; Green Peas were of a high order of merit, but Cabbages and Potatos were greatly inferior to the fresh articles. The carrying out of the recommendations made by a Commission on the subject must be of great advantage to the seamen, and help to mitigate sickness on board ship during long voyages.

LES ARBRES NAINS JAPONAIS: *Leur Formation au Japon, leur Utilisation et leur Traitement en Europe.* By ALBERT MAUMÈNE. (Paris: Librairie Horticole, 84 bis, Rue de Grenelle; and at 3, Trafalgar Buildings, London.)—It is frankly admitted that the art of dwarfing trees as it has for centuries been practised by the Japanese, is not one easily learnt by Europeans. It is not for that the less attractive, and apart from actually training small trees, the lesser question of keeping them within due bounds when already dwarfed is of considerable importance. Hence the object of this pamphlet, wherein the various ways of root and of branch pruning and of grafting are described. We find numerous illustrations of the curious little trees, some of these being taken, with due acknowledgment, from the pages of the *Gardeners' Chronicle*.

MR. F. W. MOORE.—We are pleased to be the medium whereby to congratulate the popular Curator of the Royal Botanic Gardens, Glasnevin, on the birth of a son on Thursday, Nov. 27. The continuity of "MOORE of Glasnevin" is a thing to be reasonably hoped for!

"THE BOTANICAL MAGAZINE."—The current volume is very appropriately dedicated to Dr. HENRY, to whose efforts in China botany and horticulture are so largely indebted. Dr. HENRY is at present at the Forest School of Nancy, for the purpose of instructing himself in forest management.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held on Monday, December 8, 1902, when a paper will be read by Mr. JAMES W. TYLER (Fellow), entitled "Estate Duty Valuations and Agricultural Property." The Chair will be taken at 4 o'clock, this being one of two ordinary general meetings held for the convenience of country members in the afternoon, instead of in the evening.

MANCHESTER AND BIRMINGHAM CHRYSANTHEMUM SHOWS.—Messrs. JOHN WATERER & SONS, Bagshot, Surrey, inform us that they were awarded a Gold Medal for a miscellaneous group of Hollies, Golden Yews, and other shrubs at both of these shows—facts not included in our reports.

CONCERT IN AID OF THE ROYAL GARDENERS' BENEVOLENT INSTITUTION AT CHERTSEY.—The annual concert at Chertsey on behalf of the funds of the Royal Gardeners' Benevolent Institution was held in the Constitutional Hall on Thursday evening, November 27. The attendance was most encouraging, the gallery being utilised to assist in seating the large number who attended. During the day flowers, ferns, &c., for the embellishment of the Hall had been sent by Mr. P. H. WATELOW, Mr. L. J. BAKER, Mrs. HAWKSLEY, and the School of Handicrafts; under the guidance and superintendence of Mr. A. J. BROWN the material had been arranged with good effect. On the platform were shown some splendid specimen plants, several huge Chrysanthemums, intermingled with ferns, towering above some smaller varieties in pots. The concert was under the patronage of many of the gentry of the district, most of whom attended or assisted by the purchase of tickets or a donation towards the funds. The general arrangements were made by Mr. A. J. BROWN, F.R.H.S., the local Hon. Secretary. During an interval in the programme a few remarks on the work of the Institution were spoken by Mr. BROWN.

HERR CARL LACHNER.—The death is announced of Herr CARL LACHNER, Director of the Royal Horticultural Society of Prussia. His unwearying energy had long been devoted to the interests of the Society, which showed its appreciation of his services by presenting him with its Silver-gilt Medal and appointing him honorary member. Herr LACHNER was born on May 2, 1831, at Berlin, and died of heart disease after a short illness, November 10, 1902.

NATIONAL ROSE SOCIETY.—The twenty-sixth annual general meeting will be held at the rooms of the Horticultural Club, Hotel Windsor, Victoria Street, Westminster, at 3.30 P.M., on Thursday, December 11. The dinner of the Society will be held at the same place at 5.30 P.M., when Mr. EDWARD MAWLEY, the Hon. Secretary, will preside.

YORKSHIRE NATURALISTS' UNION.—The forty-first annual meeting will be held at Hull on Wednesday, December 10, and following day. It is proposed to investigate the geology of the district round Hessle, and the botany of the foreshore of the Humber. Railway and hotel accommodation are provided for, and the headquarters will be at the Grosvenor Hotel, Carr Lane, Hull. Meetings, a conversazione, the museum, and excursions, will provide the members with plenty to interest them.

NATIONAL DAHLIA SOCIETY.—The annual general meeting will be held in the Rooms of the Horticultural Club, Hotel Windsor, Victoria Street, on Tuesday, December 16, at 3 P.M.

LONDON DAHLIA UNION.—At a general meeting of the supporters of the London Dahlia Union held at the Royal Aquarium, Westminster, on November 4, the balance-sheet was submitted and approved, and cordial thanks passed to the Chairman and Secretary. Mr. JOHN GREEN was unanimously re-elected Chairman, and Mr. RICHARD DEAN as Secretary and Superintendent for the year 1903. The Chairman reported that a satisfactory agreement had been signed by the Secretary of the London Dahlia Union on the one hand, and the Secretary of the London Exhibitions, Ltd., Earl's Court, on the other, for the exhibition of the Union in the coming year to take place at Earl's Court in the spacious Prince's Hall, close to the entrance to the Exhibition from Earl's Court Station; it is to be continued over two days, and close on the second day at the same hour as the Exhibition does, viz., eleven o'clock at night. The date of the Exhibition for 1903 was fixed for Tuesday and Wednesday, September 16 and 17. The schedule of prizes will be revised and extended.

CHRYSANTHEMUMS AT THE AQUARIUM.—It will be seen from our report on another page, that the last exhibition of Chrysanthemums that will be held at the Royal Aquarium, Westminster, was one of the most successful winter displays the National Chrysanthemum Society has had for some years past. In addition to the Chrysanthemums, there were extraordinary specimens of that popular Begonia Gloire de Lorraine, from Sir CHAS. PIGGOTT and Mr. MARTIN R. SMITH. There is much discussion at present as to where the Society's exhibitions will be held in 1903.

MURRAY'S PATENT ORCHID STAND.—Mr. COOKSON calls attention to the fact that the wire stands referred to in our report of "Oakwood," November 29, p. 392, were invented and patented by his late gardener, Mr. WM. MURRAY.

Obituary.

ROBERT TUNSTILL.—Many of our readers will be sorry to learn that the enthusiastic Orchid collector, Mr. Robert Tunstill, of Monkholme, Brierfield, Burnley, has died at the early age of 43 years, and was buried on Wednesday, Nov. 26. Influenza, which caused his death in about a week, thus takes from among us a genial man familiar to those who are interested in Orchids, and one who wished to build up slowly one of the most select collections, some of the best things in which have already been noted in our columns. Mr. Tunstill was married less than three years ago, and leaves a widow and baby son.

PROF. CELAKOVSKEHO.—We regret to hear of the death of the distinguished Bohemian botanist the Professor at the University of Prague, and better known as "Celakovsky." The Professor, who was in his sixty-seventh year, died on the 24th ult. His researches into the morphology of the cone of the Abietineæ are well known and highly appreciated.

E. BROWN.—It is with feelings of much regret that many of our readers will hear of the death of Mr. E. Brown, jun., the popular and much esteemed vice-chairman of the Southampton Royal Horticultural Society, and eldest son of E. Brown, J.P., of Above Bar and Hill Lane, Southampton. His death took place quite suddenly at his residence on Thursday morning, Nov. 27. Mr. Brown's fame as a most enthusiastic and successful Chrysanthemum grower and exhibitor is known beyond his local society, he having exhibited at the shows of the National Chrysanthemum Society and others, for several years past. He was undoubtedly an example of a *bonâ fide* amateur who did the whole of the work connected with his hobby with his own hands, from striking the cuttings, through all the various stages until ready for exhibition. Every operation of potting, soil mixing, stopping, was carefully recorded in a book for future reference. This year with only about 130 plants, he was able to exhibit 12 blooms at the October show of the National Chrysanthemum Society, 24 at Portsmouth, 78 at Southampton, and 24 at Winchester, securing seven firsts, one second, and one third prizes; also winning at Southampton two Silver Medals, one as the most successful exhibitor in the gardeners and amateurs division (beating in that several well-known gardeners), and a Silver Medal in the division open to amateurs only. Mr. Brown who was only forty-seven years of age, was very greatly esteemed by many horticultural friends. He was also a very popular member of the Hampshire Imperial Yeomanry, of which he was the Regimental Sergeant-Major. *C. S. F.*

ROSE FRAU KARL DRUSCHKI.

A GOOD white hybrid perpetual is a gain long desired by rosarians. That it has been obtained may be judged from our experience here as well as from the following account which we condense from the November number of the *Rosen Zeitung*:—

"This Rose affords another example of the fact that the value of a new hybrid cannot be fairly estimated in the first or second year of its existence. The present Rose is a seedling from Merveille de Lyon, the female parent, Madame Caroline Testout having been the pollen parent. It has been in the raiser's garden at Treves since 1898. In that year no flowers were produced, but in 1899 there appeared on those branches that had been left unpruned and unprotected in the winter four or five white blooms of good shape. More flowers came to perfection in the autumn, and the work of propagation then began.

In 1900 the Rose was shown at the Rose Exhibition held at Treves, but it obtained no prize. Since then it has been exhibited at Treves, Coburg, Düsseldorf, Frankfort-on-Main, and Mayence, and it has made successful appearances in England, Holland, and France.

The plant grows freely both in height and width, and is robust in habit. The older bushes produce shoots of from 6 to 9 feet in length, hence it can be used as a bush, or trained as a standard or pyramid. A distance of not less than 5 feet should be allowed between the plants. The buds are very long and pointed in shape, the flowers are snow-white, without any shade of rose or cream. The colour is even purer than that of a Niphetos. The flowers, when cut in bud, last in water for a week.

The flowering season continues from that of the earliest of the Tea Roses till frost sets in. One-year-old shoots bloom for the most part only at the tip, therefore free pruning is advisable. The stem is stiff, like that of any other hybrid Rose.

The hybrid is named after the wife of the President of the German Society of Rosarians.

Our illustration (fig. 143) is taken from a photograph obligingly put at our disposal by the Rev. F. Page Roberts, who thinks very highly of the new comer.

FIG. 143.—ROSE FRAU KARL DRUSCHKI: H.P., PURE WHITE.
(Half-size).

HOME CORRESPONDENCE.

IN MEMORIAM, "GEORGE DON."—May I appeal through your readers for assistance to carry out the project of raising a small memorial to George Don in his native town of Forfar. He was not only an excellent botanist, but a practical horticulturist; and although he lived a hard life of toil, died in great poverty, and he has not obtained that recognition of his work on British botany which it deserves. Several of his children became horticulturists and the calling has been followed by some of their descendants. The Field Club of Forfar and the Local Committee of the Dundee Pharmaceutical Conference have since promised £5, and Sir Joseph Hooker has kindly subscribed to the fund; any subscription to which may be forwarded to me at 118, High Street, Oxford. *George Claridge Druce.*

THE ENGLISH PARADISE-STOCK.—It is well known that the Apple-crop in these islands has varied very considerably in different localities, and it would be both interesting and instructive if we had the opinions of cultivators as to the merits and demerits of the English Paradise-stock, as compared with the free wilding or Crab-stock. My own opinion is that a crop of fruit can be secured with greater certainty from trees on English Paradise than from the free stock, although the past season at Belvoir and hereabouts does not support that opinion, Apples having borne well on all kinds of stocks, although owing to a cold late spring some of the latest varieties are smaller than usual. The Apple-crop, as we learn, was a poor one in many parts, and it is these parts which should show the difference as regards the various sorts of stocks in regard to fruitfulness. Probably few growers now cultivate trees worked on the French Paradise, and I was much interested in seeing a good collection a few weeks ago in the gardens of E. Banks, Esq., Sholden House, near Deal; these little trees in many instances, scarcely a yard high, were heavily laden with fruit, and I was told they generally bear good crops, although they make very little growth, and the trees consequently keep of much the same size for many years. As they are now of considerable age, root-pruning is seldom required, but when they were younger it was systematically carried out. I would by no means advocate this stock for general use in gardens, but for the position at Sholden I thought it a wise choice, as it is a flat piece of country near the sea, where very little shelter from the wind is obtainable. Mr. Banks will be known to some readers as the raiser of many fine Fuchsias forty or fifty years ago, including Guiding Star, Minnie Banks, Maid of Kent, and many others; and they will be pleased to hear he still enjoys good health considering his advanced age, and was much interested in showing me his little Apple-trees, of which he grows a large number consisting of most of the best varieties. *W. H. Divers.*

RUST ON SPEARMINT.—It may interest some of your readers to learn that I have had a bed of Mint completely ruined this year by the Chrysanthemum "rust," in consequence of an infected plant having been in its neighbourhood last year. The fungus took to the Mint much more kindly than I have ever seen it do to a Chrysanthemum, both foliage and stems being covered by it. *Arthur Mason, Walton-on-Thames.* [Was it a Puccinia or an Æcidium on the Mint? ED.]

GARDENERS IN LARGE NUMBERS.—I purposed some time back writing to know if there had been a mistake somewhere as to the number of applicants for a small situation—whether it should have been over 100, instead of 1,000. I have known of over 200 applying for a fairly good post, which sounds reasonable enough, but the other case does not. I am quite sure there are men about who had no business to be called "Gardeners," but gardening men; if there are such numbers of men not gardeners about, the profession of gardener had better come under the Government, and all men qualify for an efficient certificate, as in schools, and until that is obtained the man should not be allowed to get a post as a gardener. This would weed out a class of men who obtain situations that a young man who has been properly trained and instructed should only have the chance of. This is not an easy matter to arrange, and the Editor would need to issue a special edition to comprise all the details of the same. I think if something of this kind were done the union among men, as in other occupations, or the co-operative system as your correspondent describes on p. 381, might be put into operation. I must admit that good gardeners on the whole are not paid so well as they ought to be, but it happens in some cases that some ladies and gentlemen do not understand what constitutes a good gardener, consequently the other class of man accepts the situation offered at a lower salary than a good man would care to do. *A. J. Long, Wyfold Court Gardens.*

CRATÆGUS PYRACANTHA VAR. LELANDI.—I should like to endorse the remarks of "A. D." on Cratægus pyracantha var. Lelandi in *Gardeners' Chronicle*, p. 338. I am sending photographs of three plants lifted from the ground, which are less than two years old, and yet literally breaking down with the weight of the bunches of fruit. For town gardens it is a most desirable plant, as the town birds usually leave the berries untouched, and these retain their bright colour longer than those of any hardy plant. *A. Hillman.* [The photographs sent by our correspondent show three well-grown and abundantly fruited young plants, but unsuited for reproduction. ED.]

THE LOGANBERRY.—Any gardener who has grown this fruit on a large scale would oblige me by stating its characteristics, so many different versions as to its habit, &c., having appeared in nurserymen's catalogues. I am led to believe rightly or wrongly, that I have not the true Loganberry. My plant does not climb at all, but simply creeps on the ground. This season it has made growths of 12 and 15 feet in length. In one catalogue of a well-known firm, this plant is illustrated, and the figure looks like that of a great Gooseberry-bush, black with thousands of fruit, and self-supporting. One nursery in the north sent me strong roots with "no canes," these having been cut off. I planted these roots, but not one of them lived. Another nurseryman sent me for "strong canes," some weakly growths about the size of twigs used for birch-brooms. I have seen this bramble in the north fruiting fairly well, but all had to be tied up, for like mine they all had that creeping nature, and none was self supporting, and nothing like the catalogue description, while the price is very high for a bramble; but I may not have the true sort. *W. C. Leach, Guildford.*

PLANTING PEACH-HOUSES.—I notice in a recent issue of the *Gardeners' Chronicle* attention is drawn to a method of planting Peach-trees in forcing houses adopted by Mr. Prinsep, the gardener at Buxted Park. It is to me surprising that this method is not more generally followed, as it is certainly in some respects an improvement on the common method in which the front trees in lean-to and hip-roofed houses face in the same direction as the trees against the back wall. Cross trellises allow of more varieties being planted than is possible under the usual method, and each variety can have a trellis to itself. *F. W. Frensham.*

DANGERS OF A WATER FAMINE.—A dearth of water, especially in the chalk districts, appears inevitable. Residents in the districts bordering on the Chiltern Hills which run from Tring, Herts, south-west to the banks of the Thames at Great Marlow and Bourne End, are already suffering from a scarcity of water. The cry of "the waterless Chilterns" is being raised, and the higher-lying districts about the Chilterns are said to be suffering more from the scarcity than for many years past. And it seems that a probable water famine is not likely to be confined to the Chilterns, for there are complaints that the wells in the villages round Dorking are giving out, even in cases where they have been lowered, it is said, three and four times, and yet the water continues to fall. This is a very serious outlook indeed. In the gravel subsoils of South and West Middlesex the same indications of a receding of water in the soil are seen. At Hounslow I had to deepen the well in my grounds in the Bath Road 3 feet in the spring, as the supply failed; and now that the water company is laying down a very deep main through the districts of Hounslow, going some distance below the usual depth, the fall in the water will be increased. Some years ago, the late Mr. Shirley Hibberd published a pamphlet on the necessity for supplying means for the storage of water; he was far-seeing enough to apprehend that the time might come when there would be something approaching a water famine, and he strongly advocated the provision of means of storage. There is urgent need for attention being called to this matter at the present juncture. It is supposed by many that we have experienced more than the average rainfall; and yet, in many parts, the soil is very dry indeed a few inches below the surface. We have just passed through a cold and cheerless summer, with clouded skies suggestive of rainfalls; but the steady, persistent downpours, continuing for hours, and thoroughly moistening the soil to a good depth, have been few and far between. The cause assigned for the dearth of water in the several districts where it is felt is the sinking of numerous wells, and particularly the making of great artesian borings for urban supplies, or for sewerage works; these operations appear to be in danger of emptying the upper chalk of its water altogether. As the *Daily News* pointed out some time since:

"The chalk was formerly a great natural reservoir, storing enormous quantities of water, and if surface water fell short in any district, a well could be sunk almost anywhere." This natural supply is unfortunately failing. "It is clear that the water-level in the Chilterns is gradually sinking, and that unless something is done the higher land will become almost uninhabitable. Mr. Asquith, of Tring, a civil engineer, has found by experiment that in twelve years the level at which water can be found has gone down 40 feet, and at this rate many miles of country will shortly be converted into a waterless desert." Truly a matter of supreme importance alike for the gardener, farmer, and municipal authorities. *R. D.*

SWEET PEAS.—In Scotland we have a vast advantage over cultivators in the south, inasmuch as many flowers which are considered flowers of summer there, are here to be seen in great beauty during the latest days of autumn. At the October meeting of the Scottish Horticultural Association, for instance, a collection numbering thirty-two varieties of Sweet Peas was exhibited by Mr. Duncan, of Fogo, Duns, that would have astonished southern growers, alike for the size of the blooms and the extra length of stem on which they were borne. Mr. Duncan is, it may be said, a Sweet Pea specialist, and is not happy unless his Peas aspire to heights necessitating a step-ladder in their season to reach them; but during the last month I saw several gardens, at very wide distances apart, in each of which Sweet Peas were beautifully in bloom, the one great secret of success being the persistent removal of the seed-pods as soon as the latter are formed. Not the least virtue possessed by the Sweet Pea is its adaptability to all kinds of gardens, and in this respect I may mention a signalman's little garden that has been a picture since June, Sweet Peas of the best varieties contributing largely to the result. I have just noticed Mr. Thomas's list of varieties, which, perhaps owing to a wish to condense his remarks, is I think somewhat misleading. For instance, Mars and Salopian are altogether distinct in colour, and especially in colour effect from Gorgeous and Miss Willmott, and even more so from Prince of Wales. Coccinea and Geo. Gordon, I should say, will drop out of select lists; the former is good in colour, but otherwise it is not worth growing. Then in the blues, my experience is that Navy Blue, Countess Cadogan, and Captain of the Blues, are the three that are most asked for. Countess of Radnor, on account of its charming tint, cannot be dispensed with, notwithstanding the surpassing beauty of Lady G. Hamilton. In whites, I should be inclined to include Mont Blanc as being very early; Emily Henderson is perhaps hardly a select variety, but it does well late in the season. Primrose, though a poor flower, is still indispensable on account of its tint, just as Princess Beatrice continues to hold its place as the prettiest shade of bright pink. *R. P. Brotherston.*

THE WEATHER IN MID KENT.—The weather here last week was remarkable. On Wednesday, 19th, the max. in shade was 31·5°, which is lower than any max. during the whole of last winter; yet, owing to cloudy skies, we have not had frost enough at night to injure the Chrysanthemum blooms in the open borders, which are gay with them now. *Alfred O. Walker, Maidstone, Nov. 23.*

THE THREE HEAVIEST BUNCHES OF GRAPES, ETC.—Your answer to "R. E.," on the above subject, carries one's mind back to that grand show of autumn fruit in Edinburgh in 1875. Looking back, it seems scarcely possible it can be so long ago; and yet how many of the then well-known faces are gone from our ken now. It was the last time I met Mr. Robert Osborn, of the Fulham Nurseries, and his manager, Mr. Towers—both so soon after to finish their horticultural careers. None who visited the show can forget the excitement over the close finish for the 1st prize for the heaviest bunch of Grapes. I have no reference by me, but if my memory serves me aright, Currer, of Eskbank, near Dalkeith, won with Raisin de Calabre [Mistakenly called Trebbiano. ED.] of 26 lb. weight; and Dickson, of Arkleton, was 2nd, with White Nice, of nearly the same weight, or, as you say, 25 lb. 15 oz. Seeing no mention in your note of the heaviest bunches of the Eskbank exhibit, and knowing that the *Gardeners' Chronicle* "verifies its quotations," or, in this case, facts, I wonder where my memory is at fault, for I well remember the late Mr. Knight (then at Floors Castle) and myself thinking that the Arkleton bunch looked the heavier one. I regret that I cannot refer to the *Gardeners' Chronicle* of the time, for not having bound the volumes, I find many have been, unfortunately, destroyed. *Ralph Crossling, Penarth, S. Wales.* [Our correspondent is correct, Mr. Currer's bunch of Raisin de Calabre weighed 26 lb. 4 oz. ED.]

PLANT-BREEDING.—On perusing Mr. Luther Burbank's very interesting contribution to the Conference on Plant-breeding, which appears in your columns, pp. 354—356, I cannot refrain from pointing out that therein insufficient stress appears to be laid upon the inherent possibility of variation in plants altogether independently of crossing or hybridising. Even where antecedent crossing is not in evidence, he imputes the bulk of "sports" to the influence of such crossings at some prior period, which I submit is not borne out by the evidence afforded by wild "sports." In Ferns, for instance, we have, especially in Great Britain, an immense number of very distinct wild sports, which have originated in species which are quite solitary, i.e., we have no other species of the same genera in the country. Hence the question of crossing or hybridising is entirely excluded. This is the case with Athyrium filix-fœmina, Scolopendrium vulgare, and Blechnum spicant. These are all monotypic in these islands, and hence the only crossing can be between specific forms, except in such cases where collectors bring the "sports" together and effect combinations. Even in the Polystichums, though we have three species, P. aculeatum, P. angulare, and P. Lonchitis, the two former of which were artificially crossed by Mr. E. J. Lowe (P. ang. Wakeleyanum and P. ac. densum), it is impossible to impute the marvellous diversity of the collected sports to crossing, especially as the structural character of the two first are very closely akin, and the third is almost invariably dissociated from them by its much more elevated habitats. On the other hand, in the species such as the Spleenworts, of which a number exists here, often growing in juxtaposition, only one or two finds have been made which point to a hybrid origin, and even these are very doubtful; while it is a peculiar fact that the genus, taken as a whole, has varied far less than the monotypic species aforesaid. Mr. Burbank states that "Natural and artificial crossing and hybridising are among the principal remote causes of nearly all otherwise perplexing or unaccountable sports and strange modifications, and also of many of the now well-established species. Variation without immediate antecedent crossing occurs always and everywhere from a combination of past crossings and environments, for potential adaptations often exist through generations without becoming actual, and when we fully grasp these facts there is nothing mysterious in the sudden appearance of sports;" and I see nothing elsewhere in his paper which modifies this view by recognising the existence on an extensive scale of "sports" which must be independent of the interaction of diverse potencies induced by crossing diverse types. To my mind, we have as yet no facts at all before us which tend in the least to reduce the mysterious nature of the sports in question. No student of the subject in the really practical sense of the Fern hunter can accept the theory that they are induced by their environments, and as we have seen, it is impossible to impute them to crossing, at any rate in the case of the Fern sports I am treating of as examples. They occur as more or less isolated examples, i.e., as regards type, growing under precisely the same conditions as the thousands of normal plants around them, from which indeed they have generally to be disentangled, and yet not only may they be giant or dwarf, redundant or depauperate, or otherwise greatly differentiated in detail, but these new characters, as a rule, are as fully fixed as the specific, and are as truly reproduced through the spores. This last fact of itself speaks eloquently against the assumption of hybrid origin. Nor is it possible to assume that the "sport" may originate through the crossing of previous "sports," which may represent a gradation. Despite the number of accumulated forms dis-

covered, their rarity numerically as compared with the normal must be as millions to one, and they are consequently so wide apart that the chance of intercrossing is infinitesimal, quite apart from the curious fact that wild finds are rarely identical, or even closely alike, and in many cases where the resemblance is strong, the birthplaces were often as wide apart as South Devon and North Ireland, as evidenced by actual record. This being so, I think it is abundantly clear that in Ferns, at any rate, we must still bow to the absolutely mysterious as regards the origin of new forms, and admit that Mr. Burbank's conclusion is not conclusive. *Chas. T. Druery, F.L.S., V.M.H.*

JUDGES AT THE NATIONAL CHRYSANTHEMUM SOCIETY'S SHOWS. — From the schedules of prizes of the National Chrysanthemum Society for 1902, I find that five members of the Executive Committee are the paid judges at the exhibitions of the Society; and of this number three are the principal officers of the Society — men who as members of the Show Committee are supposed to be intimate with the names of the exhibitors and the classes in which they exhibit; also that the three principal officers who are judges are members of the Arbitration Committee, whose duty it is to deal with any protest as to the awards of the judges; so they may have to consider protests made in reference to their own awards. By referring to the schedule of prizes for 1901, I find that eight members of the Committee were judges in that year, as against five this year, so there is reason to hope that the proper but unsuccessful attempt made at the last general meeting to disqualify members of the Committee from acting in that capacity—an alteration of rule which the *Gardeners' Chronicle* has stated to be both just and proper — has had some good effect. The practice of selecting to make awards those who administer the affairs of the Society is so opposed to universal practice, and liable to be adversely criticised, that I am astonished the Society sets such a bad example to its affiliated societies. If the whole of the men capable of judging Chrysanthemums, &c., were included in the committee, there would be some excuse for what is little better than a scandal. So far from this, there are about the country many men who, in addition to possessing the highest qualifications as judges, are also warm supporters of the Society. On the back page of the third leaf of the schedule of prizes is set forth the composition of the Schedule Revision Sub-Committee, who have the nomination of the judges; four of the members of that committee are judges, and so nominate themselves. It is a scandal which is operating to discredit the Society in the provinces. The sooner the members remove it, the better for the Society, which, just now that it has to seek a new home, needs all the support it can obtain. *A Country Member.* [The publication of this letter has been delayed unavoidably. ED.]

THE HORTICULTURAL HALL.—Allow me to express my surprise at the plan and elevation selected for the new Hall. In an undertaking of national importance, the very best design that can be obtained should be secured, and I venture to suggest that an open competition for architects would lead to that result. I offer no criticism upon the drawings referred to, but am convinced that better designs, both for interior arrangement and exterior effect, would follow if competitive plans were prepared by expert architects, and might suggest that a prize or prizes should be awarded to the successful exhibitors. *James Wood.*

—— We are supposed to gather wisdom from our varied experiences in passing through life; reflecting over this, we can then aim our steps nearer to perfection. Is this so; and have the Committee well thought out the best place, and the best building of required size, so that we can best set out our varied exhibits effectively, so as to attract the public with such exquisite views and scenery that they never tire of coming to see? To make sure of this, we ought certainly not to have such high bare walls and lofty roofs; they tend to dwarf all productions. Let the Committee consult those who used to show or visited the Royal Botanic shows of forty years ago, when in June, from 15,000 to 20,000 of the *élite* of London used to throng there; not one in a thousand but would corroborate this. Were the grand exhibits at the great Temple Show arranged on grassy slopes and steps, with winding gravel walks like a real garden, and grand features always facing one in whichever direction one looked, what a delightful change it would be to see these exhibitions again and as of yore, every step and turn would bring a feeling of real and lasting pleasure; at last we should leave the exquisite scenery, and wend our way along narrower structures with staging filled with magnificent fruit and vegetables, together with other choice horticultural productions adapted for such positions. All these thousands used to see and count on, and such display always left a feeling of pleasure and contentment, at the gatherings of the Royal Botanic Gardens, Regent's Park; to confirm this, and in contrast, one has only to refer to the ugly corridors at South Kensington. Undoubtedly if the hall, as shown on p. 370, is to become a reality, it will be an easy matter for a syndicate to set up in opposition. I hope the Council will seriously consider my ideas of a Horticultural Hall which I was [among] the first to suggest, and that it should be in all respects quite up-to-date. *Henry Cannell, V.M.H.*

FIG. 144.—QUEX PARK, SHOWING BEGONIA BEDS. (SEE P. 424.)

LEAF-MOULD FOR ORCHIDS.—Mr. Murray, with the characteristic care and discretion brought to bear on all cultural matters concerning the plants under his charge, struck the "happy medium" in cultivating Orchids in leaf-soil, as after carefully collecting and preparing the leaves of the Oak and Beech, he mixed about equal portions of each with turfy peat, adding sand and crocks so as to increase its porosity, and covering the compost with chopped sphagnum. I have found this to answer admirably, and I would strongly recommend its use to cultivators where simple leaf-mould has proved a failure. There are conditions, such as are found in the neighbourhood of large towns and in smoky districts, where the use of leaf-soil will have to be adopted with considerable discretion, as the winter conditions of the atmosphere outside render it difficult to manage plants when potted in a compost which not only absorbs, but retains a considerable amount of moisture. With the conditions here, one need not fear any ill effects from the use of leaf-soil, providing sufficient sand and broken crocks are added to retain the compost in an open condition. So far, I am more than satisfied with the results we are obtaining. *H. J. C.*

DENDROMETER.—The dendrometer referred to in your issue of the 22nd ult., p. 380, which is being sent out by Messrs. Negretti & Zambra, is not by any means a new one. It was devised by the late Mr. John Sang, land surveyor, Kirkcaldy, Fifeshire; and in the beginning of 1840 he constructed with his own hands the first instrument of the kind ever made. He forwarded one (the second which he had constructed) by post to Mr. Loudon on January 31, 1840, and in the letter accompanying it he says: "I have taken the first leisure hour to make you the instrument for measuring the height of trees and buildings which I mentioned to you when having the pleasure of visiting you at Bayswater" (see *Gardeners' Magazine*, vol. xiv., 1840, p. 190, where Mr. Sang's letter, containing a description, with illustrations of the instrument, occurs). The instrument was in use long after that time. I possessed one myself, and over twenty years ago I gave it to a friend, in whose possession I believe it still remains. In construction, the instrument is identical with the optical square of the land surveyor, excepting that the angle which the mirrors make with each other is 22½°, instead of 45°, as in the square. The instrument which Messrs. Negretti & Zambra are sending out is identical with Mr. Sang's in every detail, but the arrangement which they have adopted for opening and closing the instrument is certainly not an improvement. A partial revolution of the one-half of the box over the other, with a stop so adjusted as to fix them in position when the openings coincide, or when the instrument is closed, is all that is necessary; but in their instrument one half of the box has to be lifted up and replaced in a fresh position when it is opened or closed. I may add that Mr. Sang was probably the first to apply the terms "dendrometer" and "hypsometer" to this kind of instrument. *A. D. Richardson, Edinburgh.*

POPULAR ENGLISH PLANT-NAMES.—Could not "F. H. B.," who asked some questions in last week's issue of the *Gardeners' Chronicle*, say where these names are in common use, the natural habitat, &c., of the plant, or the circumstances under which the designations are em-

ployed? As it stands, one might hazard the opinion that "Ur" is "Ore," and the plant Dodder. I am much interested in plant-names, and any information that could be given, would, I am sure, help towards the identification of those in question. *B.*

SINGLE-FLOWERED CHRYSANTHEMUMS.—I have enclosed flowers of a batch of seedlings, raised from seed of our own saving. The seed parents were Ethel Wynne, Mary Anderson, and Panaché de Deloix, and you will notice that many of them have colours not found in either of the seed parents. The fertilising agents were the common blow-flies, which seem particularly fond of the pollen of Chrysanthemums. The seeds were sown in the first week in January, and the plants began to flower in the first week in the following November. *R. M., Newbury, December* 1, 1902. [The flowers exhibit great variety of colour, as is usual in the case of seedlings raised from a highly cultivated flower like the Chrysanthemum. ED.]

QUEX PARK, BIRCHINGTON.

CAPTAIN COTTON, famous for his daring feats with tropical "big game," and his travels in little explored regions, has one of the most interesting gardens in the county of Kent, and one in which, while the salient features are the giant Conifers and other trees, which have taken years to grow, and general fruit, flower, and vegetable culture is carried out on the best modern principles.

Modern gardens are plentiful, but old gardens are fast becoming scarcer, and to the visitor, therefore, the interest centres mainly in the portions which tell of age. In this direction the eye turns to the mansion, with its front covered with white and yellow Banksian Roses running up to the eaves, and other climbers, among which is a very old plant of Solanum jasminoides, well covered with its white flowers, and which has grown here unprotected, although generally supposed to be a greenhouse plant. The porch and verandah have a covering of scarlet-leafed Ampelopsis and Roses, and in front are some fine Cupressus and other Conifers.

On the other side of the house, planted on the wide expanse of lawn, which now covers also the old kitchen-garden, are some magnificent Cedars, and other trees of great age, some of the most remarkable being a gigantic Cupressus macrocarpa, of fine form, beautifully branched, and whose head covers a circumference of about 180 feet—a grand object; Abies Pinsapo, and A. Nordmanniana, each some 60 ft. in height, and Deodars still larger. Beyond, and near the sunk garden of flowers and water-plants, are some huge Evergreen Oaks of great age and beauty, and beside one of which is a "Wigwam," covered with Fig trees that fruit freely. On two sides the lawn is bounded by herbaceous borders, 15 to 20 feet in width, and in season these are resplendent with showy flowers, the wall on one side still supporting Peach and Nectarine cases. These are the last remains of the old kitchen-garden, and are to be removed, as provision for fruit-growing is made in another part of the garden. The wall at the other angle is covered with Roses, Ceanothus, and other showy climbers, and wall shrubs, among some of which the slender stems and small leaves of Muehlenbeckia complexa give good effect.

Around the gardens and grounds run shrubberies and walks, having a circuit of about four miles, the whole forming a delightful part of the estate. For over the greater part of the distance the walks run through the shrubberies and plantations, and are cool in the summer and secluded at all times. Every part of the grounds is interesting, and many of the objects very remarkable. For example there is the lofty "Bell Tower," with its fine peal of bells, and the tall ornamental spire-like apex (fig. 145), which being visible from the sea, has puzzled many a mariner. It was erected soon after Waterloo, to celebrate that event, and has been carefully kept up ever since. Then there is the "Gun Tower," around which there are some forty heavy guns, representing the artillery of different countries and periods. At the corner of the mansion is the Museum, in which Captain Cotton has preserved some of the large numbers of "Big Game," and the horns and antlers of others, which have fallen to his rifle, together with other interesting objects collected on his travels. This collection is being enriched by large consignments from the owner from equatorial Africa, where he is now exploring.

Coming to matters of practical utility at the

FIG. 145.—THE WATERLOO (BELL) TOWER, QUEX PARK.

border of the estate, our attention was drawn by Mr. Cornford, the gardener, who has worked so intelligently for so many years to bring the old gardens up to the standard of modern times, to some caves in the chalk which he had excavated, in order to use the material for road-making. Some years ago it occurred to him that the excavations might be used for growing Mushrooms, and the venture proved very successful. For storing bulbs, roots, and other things merely requiring to have the frost kept out, and which are easily injured by artificial heat, the caves answer perfectly, and this winter one is to be used as a fruit room.

About a score of gardeners are occupied on the place, and one of its more recent improvements is the erection of new and comfortable bothies, fitted with all the sanitary improvements and modern appliances, and from which many wealthy garden-owners might well take pattern.

THE PLANT-HOUSES

are nearly all new structures, built of Teak-wood. The idea was that Teak did not require painting; but Mr. Cornford resorted to painting it after a time, for cleanliness sake.

The first of the new range is a stove-house, with foliage plants and Orchids; the next, the plants are chiefly Orchids, a large number of Calanthe Veitchi and other Calanthes on the shelf being very vigorous, and promising well for winter bloom. The next house to this one contains Cattleyas, the C. Bowringiana being fine, and C. Gaskelliana, C. Leopoldi, and a few more in bloom; Cissus discolor and Stephanotis covering the back wall. Then follows a range of vineries, most of the houses having Pancratiums, Amaryllis, Cœlogyne cristata, and other plants or supplying cut flowers or foliage.

In one house is a number of bulbous plants sent by Captain Cotton from tropical Africa, and out of which some new things are expected; among them, in flower, was a good potful of the carmine-scarlet Cyrtanthus sanguineus, or Gastronema, as it is often called. Then follow the Peach and Nectarine-houses; a warm-house of good Eucharis and Pancratiums; a span stove of Codiæums, Allamandas, &c.; and various other houses and pits with succession crops. The ornamental fernery has a pretty display of Ferns, Asparagus Sprengeri, Ficus stipularis, and other elegant plants; and backing it is a house of Cypripediums, Cœlogynes, &c.

Chrysanthemums are special favourites with Mr. Cornford, who has for three years in succession held the Challenge Cup of the Isle of Thanet Chrysanthemum Society; and for the final and successful contest was, at the time of my visit, preparing some 1,600 grand plants of all the best varieties.

THE KITCHEN AND FRUIT GARDENS.

The new kitchen garden of $3\frac{1}{2}$ acres has a 14-inch thick wall all round, and it is wired to avoid nailing. It has arched cross walks covered with cordon Pears, Apples, and other fruits; and in the centre is the water supply, which is one of the most important matters to look to in the Isle of Thanet, where the need of water is great, and the supply not all that could be desired at times.

Adjoining the new walled-in garden is another large kitchen garden, bounded by a dense Holly hedge. Both have been carefully planted by Mr. Cornford, and when the newly-moved trees become established they will give heavy crops. *J. O'B.*

SOCIETIES.

NATIONAL CHRYSANTHEMUM.

DECEMBER 3.—A meeting of the Floral Committee was held at 1 o'clock on Tuesday last, when a considerable number of novelties was forthcoming. Few of these, however, surpassed existing varieties, but First-class Certificates were awarded to those following:

Chrysanthemum General Hutton.—A well-known yellow Japanese variety, shaded with bronze, occasionally developing a suspicion of red colour along the margins of the florets. A capital variety that has been exhibited in good condition many times this season. From Mr. NORMAN DAVIS.

C. Beauty of Leigh.—A large golden yellow coloured Japanese, with long, fairly-broad florets, which incurve at the tips; the flowers measured 8 ins. across. From Mr. C. PENFORD, Leigh Park Gardens, Havant, Hants.

C. Miss E. Seward.—A yellow-coloured incurved variety, having a bronze shading on the reverse of florets. The variety has been described previously in these pages, and it obtained an Award of Merit from the Royal Horticultural Society on November 18. Shown by Mr. SEWARD, Hanwell.

DECEMBER 2, 3, 4.—The last public exhibition of the National Chrysanthemum, for the present season, was opened on Tuesday last in the Royal Aquarium, West

minster, and a very large display of cut flowers was made. It was due probably to the lateness of the season, that the flowers shown were not so faded in appearance as is usual at the winter exhibition, and particularly in the exhibition of 1901. The incurved flowers were not perfectly developed at the November show, and this circumstance mainly explains how it is Mr. HIGGS was able to show such good blooms this week.

In the Japanese classes the competition was equally remarkable, there having been as many as eleven collections in the class for twenty-four blooms, and considering them generally they were of fresh appearance, but unfortunately most of the varieties were similar to those exhibited in November.

Bush plants of Chrysanthemums were very few in number, but the groups of these plants associated with other species were good, and several exhibits of Begonia Gloire de Lorraine excelled anything of the kind seen previously.

This exhibition, it may be remembered, is not only the last of the season, but it is the last that will be held in the Royal Aquarium, the building having been purchased for providing a "New Home" for the Wesleyans. Most people at the show were asking, "Where will the next exhibition be held?" It was remarkable that on this occasion, the weather being bright, the light in the building was less unsatisfactory than usual. Most of the work was efficiently discharged by Mr. Richard Dean.

BLOOMS ON BOARDS.

The largest class for Japanese varieties called for twenty-four blooms, in not fewer than eighteen varieties. There were eleven exhibits, at least, in this class. The 1st prize was won by Mr. R. Kenyon, gr. to A. F. HILLS, Esq., Monkhams, Woodford Green. The varieties displayed were all pretty well known, and excepting a specimen of C J. Mee, none of them exhibited signs of age. Particularly good were Bessie Godfrey, W. H. Whitehouse, Madame R. Cadbury, Mrs. Barkley (excellent colour), Mrs. T. Thirkell, Chas. Longley, M. Chenon de Leché, &c. 2nd, Mr. John Simon, gr. to W. W. MANN, Esq., Ravenswood, Bexley, Kent. A large bloom of Madame Carnot in this exhibit had not fully developed even, but generally there was much less brilliant colour in these flowers than in those awarded 1st prize. 3rd, Mr. G. J. Hunt, gr. to PANTIA RALLI, Esq., Ashtead Park, Epsom.

Nine exhibits were staged in a class for twelve Japanese blooms, distinct, and the best were shown by Mr. KENYON. He had a marvellously good bloom of Madame R. Cadbury in one corner of the back row, and his flower of W. H. Whitehouse was remarkable; 2nd, Mr. G. J. HUNT, who was much behind in point of size and colour; 3rd, Mr. H. WEEKS, The Gardens, Thrumpton Hall, Derby. Ethel Fitzroy as shown in this exhibit was beautiful, and indeed, the colours generally were so good that we should have preferred to see the 2nd prize awarded this exhibit, although the blooms were a little smaller.

Among a dozen or so exhibits of six Japanese blooms, distinct, one from Mr. R. C. PULLING, Monkhams Nurseries, Woodford Green, containing a remarkable bloom of Madame R. Cadbury, obtained 1st prize. His other varieties were General Hutton, M. Hoste, Australie, Madame Carnot, and M. Louis Rémy. Mr. J. F. Clark, gr. to MARK FIRTH, Esq., Wiston Hall, Leicester, was 2nd; and Mr. W. Hammond, gr. to Mrs. SAM LEWIS, Woodside, Maidenhead, 3rd.

In the amateurs' section, the winners for twelve Japanese blooms, distinct, were Mr. H. LOVE, 1, Melville Terrace, Sandown, Isle of Wight; and Mr. W. Tipler, gr. to Miss SMITH DORRIEN, Hartwell Villa, Aylesbury; and for six blooms, distinct, Mr. L Gooch, gr. to T. WICKHAM JONES, Esq, Trocester Lodge, South Norwood; and Mr M. Rayment, gr. to W. BEECH, Esq, North Ockenden, Romford, Essex.

The best exhibits from amateurs in Division B were Mr. A. R. KNIGHT, 63, Hardinge Road Ashford, Kent; Mr. W. G. PRUDDEN-CLARK, York Road, Hitchin; and Mr. Ed. H. PALMER, Warrenhoe, Hertford.

INCURVED BLOOMS.

The dozen of incurveds shown by Mr. W. Higgs, gr. to J. B. HANKEY, Esq., Fetcham Park, Fetcham, were surprisingly good. The varieties were Frank Hammond, Ralph Hatton, Ma Perfection, Egyptian, Mrs. F. Judson, Ialene, Madame Lucie Faure, and Bonnie Dundee. The 2nd prize collection among twelve exhibits was shown by Mr. G. J. HUNT.

CHRYSANTHEMUMS IN VASES OR SPRAYS.

The largest "Vase class" was for twenty-four bunches, not fewer than three of one variety only in a bunch, with at least 6 inches of stem showing above the vase. The best blooms were shown by Mr. R. C. PULLING, Monkham Nurseries, Woodford Green; the varieties were all of them known ones. 2nd, Mr. G. J. HUNT; and 3rd, Mr. C. Payne, gr. to C. J. WHITTINGTON, Esq., Sandhills, Bletchworth, Surrey.

The best exhibit of twelve bunches of Japanese blooms came also from Mr. R. C. PULLING; and the winners of the 2nd and 3rd prizes were Mr. H. Perkins, gr. to the Hon. W. F. D. SMITH, M.P., Greenlands Henley-on-Thames; and Mr. W. Howe, gr. to AMY, Lady TATE, Park Hill.

The 1st prize for six bunches was won by Mr. J. Sandford, gr. to G. W. WRIGHT INGLE, Esq., Wood House, North Finchley.

SINGLE-FLOWERED AND OTHER DECORATIVE VARIETIES.

At these late shows the single-flowered varieties are very attractive

Mr. G. W. Forbes, gr. to Madame NICOLS, Regent House, Surbiton, won the 1st prize for six bunches of large-flowered varieties, showing Earlswood Beauty (white), Lady Sarah Wilson (red), Felis (crimson, with conspicuous yellow ring around disc), White Pearl, and Lady R. Buller. 2nd, Mr. J. FRENCH; and 3rd, Mr. Chas. Bentley, gr. to Col. W. J. BOSWORTH, Cedar Court, Roehampton.

The best small-flowered single varieties were also shown by Mr. FORBES, and he included Mrs. D. B. Crane, Souvenir de Mary Stevenson, Little Pet, Miss Annie Holden, and Lily Anderson. 2nd, Mr. JAS. LOCK; and 3rd, Mr. J. FRENCH.

A class for six bunches of decorative, spidery, thread-petalled or plumed Chrysanthemums, was won by Mr. J. French, gr. to Mrs. BARCLAY, Ambleside, Wimbledon Park, showing such varieties as Cheveux d'Or, Mrs. Filkins, Cannell's Favourite, &c.; 2nd, Mr. G. W. Forbes, gr. to Madame NICOLS, Regent House, Surbiton; and 3rd, Mr. H. Humphrey, gr., Briggens Park, Royden, Ware. The curious variety Arachnoideum was shown well in Mr. Humphrey's collection.

A pretty exhibit of six bunches of small-flowered Pompons came from Mr. W. C. Pagram, gr. to J. COURTENAY, Esq., The Whim, Weybridge. He had the following varieties in very good condition: Primrose League (yellow), Perfection (bronze and yellow), Petit Nid (white), and Snowdrop (white).

FLOWERS FOR DECORATION.

The best vase of Chrysanthemum blooms (excluding Pompon varieties), arranged with any kind of foliage, was shown by Mr. A. Newell, gr. to Lady SAUNDERS, Fairlawn, Wimbledon Common; and Mr. Jas. Lock, gr. to the Hon. Mr. Justice SWINFEN EADY, Oatlands Lodge, Weybridge, was 2nd.

Mr. D. B. CRANE, 4, Woodview Terrace, Archway Road, Highgate, had the best vase of Pompon flowers, using yellow and white ones only; Miss C. B. COLE was 2nd. There were nine exhibitors.

Miss C. B. COLE, The Vineyards, Feltham, who is always more or less successful in these classes, had the best hand-basket of Chrysanthemum blooms, using the colours yellow, bronze, and white; 2nd, Mr. J. French. There were six exhibits.

Exhibits of similar character to those described above were shown by amateurs, and Mr. T. L. Turk, gr. to T. BONEY, Esq., Southwood House, Highgate; Mr. W. GOODING, Edenbridge, Kent; and Mr. H Pestill, gr. to F. S. WIGRAM, Esq, Elston, Beds, were most successful.

PLANTS IN POTS.

The best exhibit of a collection of bush-grown plants of decorative varieties was from Mr. W. Yeatman, gr. to J. E. BENNETT, Esq, Hamilton Lodge, Stamford Hill, and his varieties were Mdlle. Lecroix, Madame Ricoud, Viviand Morel, J. Shrimpton, and Lady Hanham.

There were two exhibits of groups of Chrysanthemums and miscellaneous plants arranged in semi-circles of 12 feet by 6 feet. The more effective one was from Mr. W. Howe, gr. to AMY, LADY TATE, Park Hill, Streatham Common. His group contained some well-grown Poinsettias in the centre, with elegant Codiæums and other plants interspersed, the Chrysanthemums being grouped on either side; Pancratiums, Hippeastrums, Callas, Astilbes, &c., and many fine foliage plants were contained in the exhibit. 2nd, Mr. ROBT. FOSTER, Nunhead Cemetery, who made a bolder display of Chrysanthemums, but obtained less effect.

Mr. W. HOWE also obtained 1st prize for a collection of miscellaneous plants arranged for effect on a table space of 9 feet by 6 feet, and showed a very choice lot of species which were arranged to excellent effect.

A class for six plants of flowering Begonias brought a remarkable exhibit from MARTIN R. SMITH, Esq., Hayes, Kent (gr., Mr. C. Blick). The plants of Gloire de Lorraine and Turnford Hall were about 3 feet across, and were trained almost flat, their height above the top of the pot being little more than 6 inches. They were abundantly flowered.

MISCELLANEOUS EXHIBITS.

Amongst the non-competitive exhibits were two remarkable exhibits of Begonia Gloire de Lorraine and Turnford Hall, from MARTIN R. SMITH, Esq., Hayes, Kent (gr., Mr. C. Blick), and Sir CHAS PIGOTT, Bart., Wexham Park, Slough (gr., Mr. J. Fleming). From M. SMITH, Esq, there were about two dozen plants, arranged on a long table, with Ferns and some large Chrysanthemum blooms. The Begonias were similar to those from the same exhibitor in the competitive class (Gold Medal).

Sir CHAS. PIGOTT'S two dozen plants were about 3 feet across, and nearly as much high. Most of them were in 7-inch pots, and all of them had been grown from cuttings struck since April, and each plant had grown from a single stem. The amount of growth and bloom the plants have developed since April is remarkable indeed (Gold Medal).

Mr. NORMAN DAVIS, Chrysanthemum Nursery, Framfield, Sussex, taking one-half of the space under the great organ, made a grand display with cut blooms of Chrysanthemums, all very tastefully arranged in vases, bamboo-stands, or as single specimens appearing through a groundwork of Ferns. Amongst the varieties we noticed Madame Carnot, Mrs. Mease, G. J. Warren, General Hutton, Mme. Paola Radaelli, Mme. Nagelwackers, a white Japanese, high flower, with reflexing florets; and many others, including Pompons and singles. The flowers were arranged with choice foliage plants (Large Gold Medal).

Mr. H. J. JONES, of the Ryecroft Nursery, Hither Green, Lewisham, taking the remaining half of space under the organ, made a strikingly imposing show of blooms. Three large and handsome vases were furnished with nearly 100 blooms of the white Japanese Dorothy Pywell; in smaller vases were bright blooms of a yellow Japanese, Mrs. H. St. Maud, Chas. Longley, and others. On boards in front of these were numbers of blooms representing a variety of novelties, and the exhibit was brightened considerably by the inclusion of a number of plants of Begonia Gloire de Lorraine, and ornamental foliage plants. Among some pretty Pompon flowers, Osiris, pink, with high yellow centre, was most attractive (Large Gold Medal).

Messrs. H. CANNELL & SONS' exhibits at these shows are usually of the same character, a very long table with a row of tall Palms along the centre, and on one side a display of zonal Pelargonium flowers in three rows, relieved finely with Ferns, and on the other side flowers of Chrysanthemums in four rows, whilst at either end are excellent groups of Begonia Gloire de Lorraine, and occasionally of Cannas also. On this occasion there were no Cannas, but the Pelargoniums under the unusually good light appeared more brilliant than ever, and amongst the numerous varieties of Chrysanthemums there were about thirty blooms of the Japanese General Hutton, an Australian seedling, certificated on the same date (Gold Medal).

Messrs. W. CUTBUSH & SON, Highgate Nurseries, London, N., exhibited flowers of new varieties of Carnations, similiar to those described on p. 375, in our issue for November 22. The excellent white variety Mrs. S. J. Brooks was given greatest prominence; it is a very valuable variety; Mrs. Lawson, Governor Roosevelt, America, Sir Hector MacDonald, and others, were very bright (Large Silver Medal).

Messrs. W. CLIBRAN & SON, Altrincham and Manchester, furnished a good sized table with flowers of single Chrysanthemums in great variety. Many of them were seedlings possessed of excellent qualities (Silver-gilt Medal).

Mr. W. J. GODFREY, Exmouth, Devon, had an exhibit of Chrysanthemum blooms in which could be seen many of this raiser's novelties. There were some good decorative varieties also, as Scarlet Prince, Golden Prince, Nagoya (yellow), &c.

Mr. ROBERT FOSTER, Superintendent Nunhead Cemetery, exhibited a group of Chrysanthemum plants in flower, Begonia Gloire de Lorraine, &c. (Silver-gilt Medal).

Messrs. GEO. BOYES & Co., Aylestone Nurseries, Leicester, exhibited Carnations in pots, in a number of varieties including Mrs. T. W. Lawson, Shazada, Pride of the Market, and Lady Carlisle, &c. Also blooms of a large number of varieties.

LINNEAN.

NOVEMBER 20.—Professor S. H. VINES, F.R.S., President, in the chair. Mr. EDWARD AUGUSTUS BOWLES was admitted a Fellow.

Mr. R. MORTON MIDDLETON, F.L.S., gave an account of the dissertation by Linnæus on Siren lacertina, annotated by the author, which Mr. MIDDLETON had found in a dealer's possession, and since then had been presented to the Society by the treasurer.

Mr. W. C. WORSDELL, F.L.S., showed a series of anomalous virescent flowers of Helenium autumnale, six strong plants in the garden at Friar Park, Henley, the residence of the treasurer, being thus affected.

Mr. H. E. H. SMEDLEY, F.L.S., F.G.S., exhibited large wax models of the fossil seeds of Stephanospermum akenioides and Lagenostoma, the latter occurring in the Lower Coal-Measures of Lancashire; he also showed a model of a recent Cycad for comparison.

Enzymes in Plants.—The President reminded the Society that exactly a year ago he had the honour of giving an account of some observations upon the action of the "enzyme" contained in the secretion of Nepenthes. That enzyme, he then explained not only possesses the property of peptonising the higher proteids (e.g., fibrin), but is also proteolytic, decomposing the proteid molecule into non-proteid nitrogenous substances, such as leucin and tryptophane. The proof of this is afforded by the fact that liquids containing proteids that have undergone digestion give the tryptophane-reaction; that is, a pink or violet colour on the addition of chlorine-water.

Since that time many other plants have been investigated with the object of ascertaining (1) whether or not a digestive enzyme were present, and (2) of determining the nature of its action. In almost all cases the presence of a proteolytic enzyme has been demonstrated: in the first instance, plants which were known to possess a peptonising enzyme were made the subject of experiment, with the result that the enzyme was in all cases found to be proteolytic. This is true of the juice of the Pineapple (Ananas sativus, Schult, f.), of the latex of the Papaw (Carica Papaya, L.), of the Fig (Ficus Carica, L.), of the milk of the Coco-nut (Cocos nucifera, L.), of the seeds of Vicia Faba, L., and of Hordeum vulgare, L., of yeast (Saccharomyces Cerevisiæ, Meyen), and of the bacteria of putrefaction (see *Annals of Botany*, vol. xvi., 1902, p. 1).

The investigation was then extended to different parts of widely differing plants. In view of the fact that the proteids occurring naturally in plants are such (e.g., globulins and albumoses) as are readily digested, whereas those generally used (e.g., egg-albumin, fibrin) are much more resistent, the material to be digested was supplied in the form of the commercial product known as Witte-peptone, a mixture of albumoses and peptones. It was found that, with few exceptions, an enzyme was present which, as proved by the tryptophane-reaction, proteolysed these substances in 4 to 20 hours. Only those experiments are relied on in which the period of digestion was too brief to admit of putrefaction; or in which an antiseptic was employed. The digestive power is destroyed by boiling.

Having established the presence of a proteolytic enzyme, the next step was to ascertain whether the tissues or juices of the plants under investigation were capable (like the Pineapple, the Fig, the Papaw, &c.) of peptonising the higher proteids. Evidence of the peptonisation of fibrin and of the caseinogen of milk was obtained in the case of the juice of the Melon, of the watery extract of the Lettuce, and of the tissue of the Mushroom. The results in other cases were either doubtful or negative. There was frequently evidence that the proteids naturally existing in the vegetable substances themselves had been digested.

The experiments definitely establish the fact that an enzyme which actively proteolyses the simpler forms of proteid is present in all parts of the plant-body. But the question as to the precise nature of this enzyme still remains to be answered. Where proteolysis is accompanied by peptonisation, it may be inferred that the enzyme is allied to the trypsin of the animal body. Where no peptonisation, but only proteolysis, can be detected, it seems probable that the enzyme is allied to the erepsin, recently discovered by Cohnheim in the small intestine. Possibly more than one enzyme may be active in certain cases.

The conclusions arrived at depend entirely upon the reliability of the tryptophane-reaction as evidence of proteolysis. From what is known as to its chemical composition, and as to the conditions of its formation in digestion, there can be no doubt that tryptophane is a product of the disruption of the proteid molecule. The point that had more particularly to be determined was whether the substance giving the colour-reaction with chlorine in these experiments is really tryptophane. The isolation of tryptophane is a difficult process, and was not attempted. The chemical identity of the substance is, however, established by the fact that its chlorine-compound was found to give the same absorption-spectrum as does that of tryptophane, namely, a band in the green on the yellow side of the thallium line.

Prof. H. E. Armstrong, F.R.S., a visitor, and Prof. J. Reynolds Green, F.R.S., F.L.S., contributed some additional remarks.

Mr. A. G. TANSLEY, F.L.S., in his paper, illustrated by lantern slides, "The Relation of Histogenesis to Tissue-Morphology," dealt with a few points bearing on the relation of histogenesis at the apex of the stem in the Pteridophyta to the morphology of the tissue-regions in the adult stem.

Mr. L. A. BOODLE, F.L.S., followed with a paper entitled "Ste'ar Structure of Schizæa and other Ferns," illustrated by lantern-slides.

NATURAL HISTORY AND ANTIQUARIAN OF ABERDEEN.

THE DISAPPEARING FLORA OF ABERDEEN.

NOVEMBER 21.—The annual meeting of the Aberdeen Natural History and Antiquarian Society was held in the Marischal College. Dr. James W. H. Trail, Professor of Botany in Aberdeen University, President of the Society, occupied the chair. The membership is now 208.

Dr. Trail gave a paper on "The Disappearing Flora of Aberdeen," in the course of which he said the subject was one at which he had been working for some time past. He had been going into the subject a good deal more minutely during the past year or two, in the hope of being able to provide lists that would be useful for teachers, who had now to give instruction in Nature knowledge. The flora of the city parish he had been studying from the time he became a student, under his predecessor in the chair, Professor Dickie. During that time he had had impressed upon him the very great changes that were taking place. During his own experience the flora of the district had undergone an immense change, and this was going on, and had gone on, in such a way as to make it extremely difficult for those who followed them to realise what the flora was at present, unless they who lived in the transition period left some record behind them. It was very desirable that they, as a society, should try, as far as they could, to put the information they had into such form as should serve those who would deal with the subject at a later time. Even to know one small district well, meant a good step forward towards knowing a good deal more. He held more and more strongly the more he saw of Nature, that there was a wonderful truth in those lines of Tennyson—

> "Flower in the crannied wall,
> I pluck you out of the crannies—
> Hold you here, root and all, in my hand,
> Little flower; but if I could understand
> What you are, root and all, and all in all,
> I should know what God, and man is."

Professor Trail then proceeded to enumerate and to describe briefly the works that had assisted him in his study of the past history of the flora of the district, and read several interesting extracts from the work of Gordon of Rothiemay regarding the town of Aberdeen and its people. A number of old pictures and maps were then shown on the screen by a lantern. From these the growth of the city and the contingent changes on the configuration of the ground could be traced; in particular it could be seen how the Inches, or islands in the estuary of the Dee, had completely disappeared.

Professor Trail then went on to discuss the changes which had taken place in the flora of the district consequent upon the growth of the city. The plants that formerly were found in the estuary of the Dee, he said, had disappeared. A very great change had taken place through the disappearance of the marshes which formerly existed, with the result that many plants which formerly must have been plentiful, and many others of which they had no record, but which, considering the flora of the neighbouring parishes, must have existed, had ceased to do so. As nearly as he could make out, of all plants of which he had a clear and definite record, thirty species had disappeared, and were completely extinct within the city area. About fifteen more species he thought were extinct, but he could not be positive about this, as the plants were very small and might have been overlooked. He thought, however, that forty or fifty plants were completely extinct, and several others were becoming so. Take, for example, Heather, which must have been very abundant. He could find no trace of it on the north side of the Dee, although there was a little on the south side of the mouth. Then again the Blueberry, another plant of the same family, he had found in the Rubislaw district, in the Dee especially, but that ground was being rapidly feued. This must have been an abundant plant, and they would therefore see that in a single family, a very great change had taken place. Proceeding to describe the causes of these changes, Professor Trail said in the first place, as they were told by Gordon, at one time the ground within a mile of the city was uncultivated, and there were a great many marshes and moors about. Earlier still, there were forests which came down as far as Rubislaw and in from Newhills also. Cutting down the forests was one of the first changes. Then came cultivation, then the draining and the clearing of stones away from the ground. The marshes had also disappeared, and great changes had been made by quarrying, breaking up the surface of the ground. For instance, Rubislaw Quarries used to be a happy hunting ground for the botanical student. It was not that now, and perhaps the next holder of his chair would never recognise that this was a place where abundant specimens were found. Then a very great change had been made in the spreading of the town, and the laying out of the streets, and as he had said the result had been absolutely to get rid of upwards of thirty species. Comparing the flora with that of other parishes, he found fifty-nine other plants which he could almost absolutely say had grown within the city area. That was to say, the effect of man's occupancy of the city of Aberdeen had been to diminish the native flora by 110 to 120 species. A great change had also been made in the giving up of agricultural ground, and in the dumping down of rubbish of all kinds, that had done away with many plants.

The old channel of the Dee had been filled up, and about five acres were taken in for the extension of the railway. By the kindness of the railway authorities he was allowed to make any observations he wished on this ground, and he did so with great interest. He found there a very curious flora, by which he could tell of the commerce of Aberdeen—a side-light on the social life of the city from a botanical point of view. Among the plants he found were Orange trees, Vines, and Date Palms. These did not survive our winter except in a few cases, when the plants lived for a few years, but comparatively few of these plants now survived. Along the side of the river were to be found a few intruders, chiefly American plants. These intruders mostly grew on cultivated ground, and when the ground ceased to be cultivated they died out. But there were others which became like natives, so that it was extremely difficult in such a parish to say which flowers were natives, and which had been introduced by man. He asked them whether it would not be worth their while to obtain views such as he had shown that night, and to collect information of the present history of the parish. Another worthy object of the Society would be to get together a natural history of the district, including human progress, so that those who followed after them might be enabled to have an exact record of the changes and progress that had taken place at the present time.

At the close of the lecture, Professor Trail explained representations of specimens of many of the plants he had mentioned.

REDHILL, REIGATE AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

ON the occasion of the fourth meeting, held on Tuesday, November 25, at Mutton's Hotel, Reigate, Mr. W. P. Bound, gr., Gatton Park, in the chair, a lecture on "Hardy Fruit Culture" was delivered by Mr. T. W Herbert, gr, Nutfield Court, before a numerous audience of members.

A variety of exhibits were displayed, including an undisbudded branch of a Chrysanthemum from Mr. J. SEARLE, and a fine collection of Apples from the lecturer.

DEVON & EXETER GARDENERS'.

NOVEMBER 23.—At the usual fortnightly meeting, Mr J. Mayne, Bicton Gardens, read an excellent paper on "Hardy and Half-hardy Annuals for the Flower Garden."

Aster sinensis, Salpiglossis, French and African Marigolds, Nemesias, Gypsophila elegans, Lantanas, Sweet Sultans, Portulaccas, and other subjects which like a warm and dry situation were recommended, together with appropriate cultural directions, and useful facts connected with the subject.

ULSTER HORTICULTURAL.

ORGANISATIONS, like individuals, may deserve success; but it is more difficult to achieve it. This Society has done both, and by its plucky enterprise has grown, until it is to-day one of the most important and useful societies in the United Kingdom.

The present show was postponed a fortnight, so that the Society could secure the great advantage of their Excellencies the Earl and Countess Dudley for the opening ceremony. St. George's covered market is an ideal place to hold a show, so comprehensive and of such magnitude is it. It is capable of holding from 4000 to 6000 people with ease, and long before the hour appointed, the building was packed with visitors—a striking contrast to the similar function last year, when, owing to the violence of a storm, the building was flooded in some parts to the extent of 3 feet in depth, and certain plants were completely washed away from their positions. Judging was done under extreme difficulties; men had to be organised to wade into the water and arrange a system of plank gangways for the judges. Such a state of things would have extinguished not a few societies, but it had the opposite effect upon the Ulster men, for it really stimulated them to greater efforts, and it made the hearts glad of those who knew this, to see the Hall

crowded with visitors this year the greater part of the two days the show was open, thus securing the big financial success so worthily deserved.

Another pleasing feature of this Society, and one quite worthy of imitation, is the free invitation given to every organised charitable body of mission children, and of every denomination, on the morning of the second day. The pleasure enjoyed by these little waifs and strays must be seen to be fully realised, as they are allowed full freedom during their visit—a confidence which they have in no single case abused. Through the kindness of friends, every child is on leaving presented with a bun, an Apple, a bag of sweets, and a button-hole flower; possibly small matters, but which doubtless create an indelible impression on many of these juvenile minds; and who dare speculate on the ultimate result of this little seed?

The show itself was of a high order of merit, hardy fruits such as Apples and Pears especially so, and one was agreeably surprised in such an adverse season as this, to find the quality and size so good It is perfectly clear that the north of Ireland is capable of growing fruit of first class merit, and it is to be regretted that growers are not induced to compete in the section that is reserved for them at the Annual Fruit Show of the Royal Horticultural Society held at the Crystal Palace.

If growers could be so induced it is a certainty they would also be able to render a good account of themselves in the open classes, especially if the date was less early than that of the last show. It is to be hoped Irish growers will be specially informed in future of the above show.

In the class for twenty vases, Japanese, in twenty varieties, three blooms of each, Lord O'Neil was placed 1st (gr., John Johnston); 2nd, C. E. Allen (gr., Mr. Jackson).

Twelve Japanese in twelve varieties: 1st, Lord O'Neil; 2nd, T. H. Torrens (gr., Mr. Robinson).

Forty-eight Japanese, at least thirty-six varieties: 1st, T. H. Torrens; 2nd, John Torrens (gr., W. Hodgins).

One vase, six blooms, white: 1st, R. E. Ward (gr., J. Delaney); 2nd, T. H. Torrens.

Twenty-four incurved, at least eighteen varieties: 1st, T. H. Torrens; 2nd, T. Watson (gr., S. Hutchinson).

Six vases St. Bridgid Anemones: 1st, Mrs. Smyth gr., E. McIllwaine); 2nd, Lord de Ros.

Bridal bouquet: 1st, Messrs. F. E. Smith, Belfast 2nd, Messrs. A. Dickson, Belfast.

Bridesmaid's Bouquet: 1st, Messrs. A. Dickson; 2nd, Messrs. F. E. Smith.

Table of dessert fruit, twelve varieties, decorated: 1st, Marquis of Downshire, 73½ points (gr., Mr. Bradshaw); 2nd, Lt.-Gen. Pakenham, 66½ points (gr., Mr. Harding); 3rd, Lord O'Neil, 56 points (gr., Mr. Johnston).

For decorations taken separately: 1st, Marquis of Downshire; 2nd, Lord O'Neil; 3rd, Lt.-Gen. Pakenham.

Two bunches black Grapes, Alicante: 1st, Marquis of Downshire; 2nd, Lord Macnaghten.

Two bunches Lady Downes: 1st, Lieut.-Gen. Pakenham; 2nd, T. Watson, Esq.

Two bunches Gros Colmar: 1st, Lady Emily Bury, (gr., Mr. McKenna); 2nd, Marquis of Downshire.

Two bunches Muscat of Alexandria; 1st, Lord O'Neil; 2nd, Lieut.-Gen. Pakenham.

Twenty-four dishes Apples: 1st, Lieut.-Gen. Pakenham; 2nd, Marquis of Downshire; 3rd, Lady Emily Bury.

Twelve dishes Apples: 1st, Mrs. R. Hamilton; 2nd, Countess of Caledon.

Collection of vegetables, twelve kinds: 1st, Lieut.-Gen. Sir R. Palmer; 2nd, Lord Macnaghten.

The trade loyally supported the exhibition with large and varied tables and groups of plants. One group, that of Hugh Dickson & Son, was a masterpiece of art in the artistic arrangement around a grotto of cork, and lighted with electricity; with the addition of a little warm colour, it would have been quite perfection.

The same firm also had a large, well-arranged group of hardy shrubs and conifers, for which the firm is so celebrated; and also a long length of tabling containing huge piles of choice Apples, Pears, Grapes, and other fruits, decorated with choice plants and flowers.

Messrs. Alex Dickson & Sons, also contributed a long table of choice fruits charmingly decorated.

The strong competition in the Butter department shows how important an industry are the modern Irish Creameries. Roots were also excellent. *Corr.*

THE VEGETABLE GARDEN.

SPRING CABBAGES.

An interesting discussion was raised last year in these columns concerning the failures from bolting, &c., of spring Cabbages in this country, and my intention in this note is to show the value of some varieties of Cabbage over others, and the effects of different methods of cultivation; the Cabbage being such a useful vegetable in the earlier half of the year, and especially when frost has decimated the Broccolis and greens. In some gardens, the land is dug deeply, and large quantities of manure are afforded; and in these there are many failures, the causes of which are not far to seek. It is a well known fact that early sown or very vigorous plants are apt to bolt, that is, run to seed; this is the result of sowing at too early a date. Still, late sowings, if not so liable to bolt, are not profitable [to the trade grower. Ed.], as they turn in late. In order to avoid these two extremes, I advise that seed be sown from July 10 to 20, or the date may be varied a little earlier or later according to latitude.

As regards the actual sowing of the seed, it is such a simple matter that I need say but little about it. But even in this matter there are a few points worth observing, as frequently the seed is sown too thickly, and my advice to beginners is to have a good-sized level bed, and sow it so as to get about one plant on every 2 inches square. It sometimes happens that from various causes planting is delayed, the plants in consequence get crowded in the bed, and become thin and drawn, and take a long time in getting established. Seedlings may be saved from this defect by pricking out into nurse-beds whilst in the first rough leaves; but it is not really necessary if the seed be sown thinly, and at the right time. It is well to sow on land that has not carried any of the Cabbage family for a year or two, for this reason, that club-root is almost sure to come if Brassicas be grown frequently in the same spot. The seed-bed should not be much enriched, or the plants will be lacking in sturdiness, and will run to leg, and be large and soft; neither is a hungry soil good for the plants. In the spring this is of less importance, as growth is then quick, and the conditions are very different. Again, some soils are heavy, others light, but both may be made suitable by addition of suitable materials, which in many cases would be more beneficial than heavy dressings of manure. As regards varieties to sow for consumption in the spring, I observe that in the north of England the varieties grown are not the same as those met with in the south, and the same thing may be observed in the eastern and western parts of the country.

There is no question but that Ellam's Early Dwarf is one of the best early varieties grown, and it rarely fails, though a small number of my plants bolted last spring; but I expect that this was due to the seed being sown too early, the plants getting extra large before winter set in. In the north, Mein's No. 1 is a great favourite; here in the south I do not think it nearly so good as Ellam's, being later in turning in, and also of larger size. Wheeler's Imperial, an excellent old variety, I place in the same position as Ellam's; it does not bolt, is of capital flavour, and very early. For many years Early Nonpareil was with me a great favourite, but it is not so now; whether the stock has degenerated I know not, but more than half the plants bolt. There is an Imperial Nonpareil, but certainly I have not yet had that variety.

It should not be supposed that I have a wish to depreciate the newer introductions, as I think that during the past few years some great improvements have taken place among Cabbages; take Ellam's as an example, and there are others. The tendency has been to get fewer coarse outer leaves, more rapid growth, a thinner midrib to the leaf, and good quality. For instance, many years ago we had no Cabbage that could compare with Sutton's Earliest; this of course is a summer Cabbage, but it may be grown by all who require a delicate-flavoured Cabbage to follow the spring varieties. As regards first-rate varieties, I should name Earliest-of-All, a very fine stock; this I have sown in a frame in January, and had fit for table use in May. Sutton's Imperial is a very fine early variety, a little later than Ellam's, and very true, so far as was proved in a northern garden. A Cabbage much liked in the eastern and northern counties, and of splendid quality, is Johnson's Early Market, a very trustworthy variety, and if not sown too early, equal to Ellam's in every point. In the west, Early Offenham is much grown; and Early Rainham is a favourite market variety; and these are larger than most of those named above. I must not omit to mention that beautiful little Cabbage Sutton's Flower of Spring, one of the earliest, of fine quality, and not bolting when not sown too early. Much the same may be said of Sutton's April, an excellent early Cabbage, and of the most delicate flavour. There are others, but I have noted the best of the newer varieties.

A few words as to cultivation. I would in all cases advise a firm soil for early spring Cabbages, for many failures occur by planting on freshly dug rich land, the seedlings making soft growth, which get badly injured at a later date, and many plants are lost altogether. In heavy, clayey soils this remark would not apply so strictly. At Syon, I grow a large quantity of Onions; the soil is very light, too much so for an Onion crop, and it has to be well trodden and rolled, and the necessary cleaning, thinning, and feeding hardens the surface. When the Onion crop is cleared off, it suffices to Dutch-hoe it, draw drills, and put out the Cabbage plants, and even then, before the approach of severe weather, the plants are trampled round before being earthed-up; and by reason of the firm root-hold the plants get, growth is dwarf and firm, and there are few failures. By this it will be seen there is no manuring immediately before planting, and better results follow manuring in early spring, or as soon as growth commences, than by using nitrate of soda, guano, fish-manure, &c., at an earlier date. By adopting this method I get a greater number of plants off the land by close planting. *G. Wythes.*

ANSWERS TO CORRESPONDENTS.

Alpine Plants for a Small Town Garden: *W. W.* Achillea tomentosa, Æthionema cordifolium, Alyssum alpestre, A. argenteum, Androsace carnea, A. pubescens, Aubrietia deltoidea and varieties, A. purpurea, Calandrinia umbellata, Campanula cæspitosa, C. pulla, C. turbinata, Gentiana acaulis, G. verna, Saxifrages various, Sedum Ewersii, Silene alpestris, Thalictrum minus, and many others.

Acers recently Lifted and Potted: *J.B.H.L.* The plants should have been potted firmly in stiff loam in pots that accommodate the roots easily, afforded water, and plunged in coal-ashes or tree-leaves in a cold pit or garden-frame, affording protection against hard frosts. The plants should be afforded just as much water as will prevent the wood from shrivelling, and be afforded air night and day in mild weather. Increase the amount of air applied as spring approaches, also the quantity of water at the root.

Answers to Advertisements: A lady recently stated in our columns that she had received over a thousand answers to an advertisement that had appeared in the *Gard. Chron.* That being the case, it is no wonder if no reply could possibly be forthcoming for the majority of applicants; but in a case brought under our notice recently, it would seem as if the applicant had been ungenerously treated without due cause. It appears that the advertiser living in an eastern county, was asked to call at a house in Kent, with regard to a situation as gardener. He came up to town by appointment, and proceeded to a south-eastern suburb. Arrived at the residence indicated, he was told to wait for an hour. The hour expired, and then the gardener was told that the situation had been filled the day before, and 2*s.* were given him to compensate him for his travelling expenses and loss of a day's pay, amounting at a fair estimate to a total sum of 9*s.* 10*d.* As no arrangement was made beforehand, we are afraid the gardener has no remedy; but we tell the tale to put others on their guard.

BASIC SLAG *v.* FARMYARD MANURE: *J. W. M.* For land rich in organic manure you would find a heavy dressing of quicklime, digging or ploughing it in at this season, more beneficial than basic slag. The artificial manure dealers or horticultural sundriesmen supply the latter. See *Garden Directory and Year Book* for 1902.

BOOKS: *F. Corney.* Purchase B. S. Williams' *Orchid Manual*, a trusty guide on the cultivation of these plants, published at the Victoria and Paradise Nurseries, Upper Holloway, London, N. If you read the *Gardeners' Chronicle* attentively, you will obtain the opinion of many different Orchid growers about half-decayed leaves as a substitute for sphagnum, peat, &c., in Orchid culture. Our time is too precious to us to be able to reply by post.—*Brassica.* If you are acquainted with the German language, you would find much valuable information in the work on raising plants from seeds, by H. Jager and Ernest Benary, *Die Erziehung der Pflanzen aus Samen*, published by Otto Spamer, at Berlin and Leipzig, and obtainable in London at Williams & Norgate, Henrietta Street, Covent Garden. We know of no similar book in the English tongue. For the other books required you should consult a bookseller.—*J. W. M.* You might study *Landscape Gardening*, by H. E. Milner, and *How to Lay Out a Garden* by Kemp. The matter requires more than a mere passing study if you intend to show plans in competition.

CHRYSANTHEMUM-BUDS: *Novice.* It is true as stated last week, that the best coloured flowers are produced from the terminal buds, and many varieties that show considerable colour when grown from these natural buds, have much less upon second crown buds, and next to none upon first crown buds. The reasons that in the catalogues the second crown bud is recommended most often, and that the first crown bud is recommended occasionally, are principally as follows: In some cases, the terminal flowers come too late for the exhibitions; and in others, the flowers being of less size, would lose when shown against the same varieties grown from second crown buds, for judges are apt to favour large size, even when the degree of colour in them is less than in others. It may be said that in most cases where second crown buds are "taken," it is done to obtain greater size. As you are cultivating your plants without regard to exhibitions, you should experiment a little, and in a season or two you will have proved which bud you have found the standard varieties to be best upon. The more terminal buds you cultivate the more reflexed will be your flowers; they will be of less size, and richer colours.

CHRYSANTHEMUMS IN SMALL POTS: *Novice.* As a rule, cuttings are struck in March or April, and they are cultivated to produce one bloom upon a single stem, or a bloom upon each of three stems. In the latter case, growers usually stop the young plants soon after they have rooted, being about 6 inches high, and select three growths from the new shoots. These get away without check, and in some cases, namely, those varieties that require a long time to develop, the first bud that shows is selected for flowering, and all growths and other buds are rubbed away. But in other varieties, that produce buds more frequently during growth, or require less time to develop, the bud may be rubbed off, and one growth selected again from those that will come from around the bud. The bud to be selected, in fact, must be decided by the knowledge of the date at which the plant is required to be in flower. Very late-flowering varieties should be propagated first, mid-season ones next, and early-flowering sorts, as Viviand Morel and its sports, also Lady Byron, &c., last. Any of the free-growing varieties may be successfully grown by this system in 6-inch or 7-inch pots.

CHRYSANTHEMUM WESTERN KING: *W. T. F., Wallington.* We have submitted your question to a noted specialist, and the following is his answer—"There have been two or three yellow sports from this variety, but they have no value. Being an incurved floret the colour is hidden, and only shows the pigment through the back. Sports of this kind are very seldom worth retaining, except on the chance of their sporting again to a deeper yellow. A really deep yellow Western King would be much appreciated, but not in the tone of colour it would assume in a first sport. An illustration of what is meant may be seen in Mrs. Geo. Rundle, which first sported to creamy yellow, viz., Geo. Glenny, and then the sport re-sported to the deeper colour of Golden Geo. Glenny or Mrs. Dixon. The above is written from the decorative point of view. The value of degree in colour is not so great in the largest exhibition flowers.

CORRECTION.—The two last words in column iii., p. 392, should have read Muriel Grahame, not Mildred Grant as printed, Muriel Grahame being the sport from Rose Catherine Mermet there mentioned.—In the *Gard. Chron.* of last week, 3rd column, p. 389, "Loudon" is named instead of "London."

CURRANT-BUD MITE: *W. C.* This has been repeatedly figured and described in our columns, and various remedies suggested, but we regret to add that no satisfactory mode of treatment has yet been discovered. We should cut the bushes down and burn them; if this were done repeatedly, the pest would at least be abated.

GRAPES AND VINE DRESSING: *A Reader.* The shrivelling of the Lady Downe's Seedling Grapes is most probably due to great dryness at the root. Ascertain the state of the border. For mealy-bug employ petroleum emulsion as directed by the maker; or Gishurst Compound soap at not greater strength than 3 ozs. to the gallon of hot-water, thoroughly dissolving it in the water before use. The Vines should be well cleaned of loose bark, and dressed with one or the other in this or the next month.

HARDY FRUIT GARDEN CALENDAR: A CORRECTION.—Inadvertently, in my Calendar in last week's *Gardeners' Chronicle*, I named a variety of Pear Passe Colmar, when Passe Crassane was intended. *J. M.*

MOSS LITTER: *W. F., & W. H.* When fermented and decayed it forms a valuable manure, but in the fresh state it is deleterious in its action on plants, and it is scarcely so efficacious as ordinary stable litter kept long under the horses.

MATERIAL IN WHICH TO GROW PLANTS: *F. Corney.* Some experienced cultivators do not regard it with favour.

MANURES, &c.: *T. H. B.* Stable and farmyard manures are organic. Salt might be used with advantage on dry soils, together with peat-moss-litter, and bone-manure, the peat-moss being thrown in a heap, allowed to ferment strongly, and then turned over, mixed together, and again allowed to ferment more than once before applying it. The roller should be an ordinary wooden one. The bush-harrow would be better for grass-land than the chain-harrow. The lumps of turf, if the grass-side is put uppermost, would certainly grow. If the work is done during mild weather in the present winter, the course should be fit for racing by June; but, of course, a longer period would be better.

NAMES OF FRUITS, ETC.: *We are desirous to oblige our correspondents as far as we can, but the task is becoming too great, too costly, and too time-consuming for us to continue it without restrictions. Correspondents should observe the rule that* **not more than six varieties** *be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. The fruits should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.*—*Pomona.* 1, Hambledon Deux Ans; 2, probably a local variety; 3, Cox's Pomona; 4, Winter Greening. It is evident, as you say, that Pears do not succeed in your soil. Those sent are so much out of character as to be unrecognisable.—*R. A. R.* 1, Warner's King; 2, King of the Pippins; 3, too shrivelled to be identified; 4, Winter Greening; 5, Reinette du Canada; 6, Harvey's Wiltshire Defiance.—*G. W. G.* 1, not known; 2, Waltham Abbey Seedling; 3, Beurré d'Aremberg; 4, Beurré Superfin; 5, Comte de Lamy; 6, rotten, past recognition.—*E. Y.* Beurré Superfin.—*S. C. G.* 1, The Queen; 2, Cox's Pomona; 3, Sturmer Pippin.—*Mrs. Harrison.* 1, Cox's Orange; 2, Golden Reinnette; 3, Newton Wonder; 4, Blenheim Orange; 5, King Pippin; 6, Wellington.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*W. B.* 1, Abies concolor; 2, a Cedrus, probably C. atlantica; 3, Cupressus (Retinospora) squarrosa, a form of C. pisifera; 4, Cupressus Lawsoniana; 5, Cupressus (Retinospora (plumosa, a form of pisifera); 6, Thuya dolabrata.—*W. T. D.* 1, Allamanda cathartica; 2, Begonia nitida variety; 3, Peperomia Verschaffelti; 4, Hibiscus rosa sinensis; 5, Tydæa formosa; 6, Begonia ricinifolia ×.—*F. G. H.* 1, Vanda cœrulea, not well developed, and consequently small, and nearly white; 2, Epidendrum lanipes; 3, Cypripedium × Dibdin (Murillo).—*Foreman.* 1, Pleurothallis rubens; 2, Pleurothallis longissima; 3, Restrepia antennifera.—*Land.* 6, Vincetoxicum officinale; 7, Cirsium rivulare; 8, Galeopsis angustifolia; 9, Epilobium rosmarinifolium; 10, Gentiana purpurea.—*Sam Plant.* 1, Pulmonaria officinalis; 2, Stachys lanata; 3, Ajuga reptans, Bugle. The pot-plant is apparently a Diosma, but there are no flowers.—*Constant Reader.* Rodriguezia pubescens, sometimes found in gardens as Burlingtonia Lindeni.—*H. 4.* 1, Epidendrum ciliare; 2, Dendrobium crumenatum.—*Vigo.* 1, Lycaste lasioglossa; 2, Lycaste cruenta; 3, Cattleya labiata; 4, Sinningia.—*J. M.* Benthamia fragifera.—*W. O.* Known in gardens as Gesnera elongata.—*A. G.* The dwarf one is Festuca ovina (Sheep's Fescue). The other, Festuca ovina glauca.—*Ralph.* 1, Holbœllia latifolia; 2, Pittosporum tenuifolium.

VINE-ROOTS DEAD: *H. G.* We will premise that a scrap of one-year-old root and a handful of soil do not afford in this case much upon which to base an opinion. We should have liked to inspect a good quantity of roots of various ages, taken at various depths in the border, some shoots, together with leaves on them, and a bunch of Grapes. The roots are suffering doubtless from something in the soil that was mixed with it at the making of the border, or that has been applied to it since. The flagging complained of is doubtless due to the continued loss of roots. These seem to grow to a certain length, ramify as do healthy roots, and then die. To us, this looks as if something deleterious to Vines is met with by, or has been applied to the roots. There is no fungus, no destruction of tissue by weevil grubs or mole-crickets, and no phylloxera. The soil is heavy, adhesive, deficient in porosity, and therefore apt to hold a large amount of water. As the Vines in the early vinery are doing well, there is doubtless some condition of the soil, drainage, and situation of the border, or of the constituents of the soil, or of the manure afforded, that would account for the differences observed. We would advise you to get the opinion of some experienced gardener in the neighbourhood.

WORMS ON LAWN TENNIS COURT: *Cymro.* Had you read your *Gardeners' Chronicle* attentively, you would have seen the reply that we gave to *L. T.*, in the issue for November 8, p. 348, col. c.

COMMUNICATIONS RECEIVED.—H. Coleby (too belated to be of interest)—W. G. S.—F W. B.—G. S.—C. J.—E. T. C.—J. W I.—A. D. R.—J H. E—M. Barbey.—W. C. W.—J. C. T.—Mrs. Sharp.—W M.—Col. Murray.—G. B.—L. Bradley.—Pomona, Limpsfield.—O. L.—W H. W. W.—T. R—R. M.—D. R. W.—A. F. and sixteen years Foreman Market Gardener We cannot insert articles under *nom de plume* unless they are accompanied by proper name and address.—A. W. S.—E. B.—F. C.—J. L.—J. S.—W. A. C.—G. G.—S. C.—W. G. W.—P. B., South Africa.—W. B.—A. E.—E C.—B.—C. T. D.—A. M.—J. D. G.—S. K.—J R. J.—N. E. B.—R D—J. G. B—W. B. H.—A. D—W. H D.—F. C.—G Paul—C. H. F.—W. T. P.—H. Reynolds—T. R.—Claremont.

(*For Markets and Weather, see p. viii.*)

THE
Gardeners' Chronicle

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View of Aldermaston Court, the residence of C. E. Keyser, Esq. (Supplement)

TABLE DECORATION.

OWING largely to the favourable autumn, it has been possible up to a late date to procure really beautiful, if common, flowers from the open for decorative purposes, and particularly for table decorations. But really, after many years' experience and experimenting, I am forced to conclude that the years when flowers, fruits, or foliage, cannot be got, are few and far between. I cannot recall a year when, in November and December, there has not been some material, not to say suitable, but even desirable for this purpose. Of course, indoor material have to be introduced too, though this year it has hardly needed to be requisitioned. I have called the flowers common, but they are common only because easily produced; and I think it doubtful if one wanted to purchase it, whether the material could be bought in the establishment of any florist.

Roses hold a first place, and Roses are becoming more plentiful late in the year because so many sorts are late flowering; but while that is so, the old China will take a lot of beating yet, and there are more years in which it is possible to cut quantities of this than there are years when it fails. The flowers may be used in any way, either in cups, or laid on the cloth, whether with their own foliage or supplemented by fine sprays of Smilax. Then single-flowered Hollyhocks are distinctly perpetual; stems carrying open flowers in July were not bare till recently. Some of the colours are eminently lovely, such, for instance, as the yellow of Althæa ficifolia — but, indeed, all are beautiful. This year I introduced double flowers from Sutton's Rose Queen; these are quite brilliant by candle-light. Smilax works in well with all kinds of Hollyhock, and there is so much variety that they provide a never failing fund for floral effect.

In Schizostylis coccinea, a plant that many flower-lovers are quite unacquainted with, we have brilliance without the least trace of gaudiness. No plant is easier to grow, but it should be set in a dry, warm spot, where frosts are not greatly felt. Its own foliage, or the small leaves of Montbretia, are quite as pleasing as Smilax or Fern as a setting. I have used Schizostylis with good effect along with Helleborus odorus, a plant that without fail provides abundance of flowers in November and December. Mr. J. G. Baker, in his synopsis of Helleborus, describes the flowers as green. As a fact, they are green, and yellow, and white, but each so elusive, that it is impossible to say exactly what is the colour. This present year the tint is decidedly greenish, but sometimes it would be better described as greenish-yellow. These, when arranged with flower-buds and open flowers, require scarcely any other setting, but if any be needed, small leaves of seedling H. fœtidus are charming.

Late Asters come in very useful; for instance, A. Tradescanti, the true Michaelmas Daisy, with white blooms, as described by Johnston. Very frequently A. Amellus is to be had late, but of course it must be sparingly used. A delightful flower for decorating is found in Jasminum nudiflorum. It may be employed either alone with pieces of its own shoots, or Helleborus maximus and H. angustifolius go well with it, though it is, I think, best not to use these till Christmas has come and gone.

Besides flowers, fruits can be used with good effect. Rose hips-and-haws are pleasing, and when supplemented by the coloured autumnal foliage of Rose "Amadis," there is scope for much variety in floral arrangements. On occasion, the white fruits of the Snowberry (Symphoricarpus) may be employed. The fruits of the common Euonymus when expanded provide very brilliant tints; they are best arranged with Smilax. Preferable to even these are the sprays of the common Barberry. I have also employed Berberis stenophylla with its plum-coloured berries, and B. aristata, but these though pretty cannot compare with the first named. Then Cotoneaster frigida produces bunches of very bright fruits suitable for this purpose. Hippophae rhamnoides, if it were not for the offensive smell emitted by the fruit would be also most suitable, but I have not on the above account used it these many years. Not always to be had, but desirable as a change in favourable years, the ripened fruits of Arbutus Unedo, arranged with its own flowers and foliage, may also be mentioned. Other common material is to be had in the tips of common Rushes, the brown foliage of Beech, the common Brake in a variety of winter browns, common Ivy when coloured by exposure, or grown in a poor soil; the small Periwinkle, particularly the white form, which sometimes produces flowers during the winter. There is, it hardly needs saying, more material to choose from, but one has to be very careful in selecting common flowers, &c., for decorating large tables that they are not so common as to be vulgarly so.

Of indoor flowers, nothing is superior to Cypripedium insigne, either used alone or with just a few sprays say of Plumbago rosea, a really lovely thing by candle-light. In zonal Pelargoniums we have a splendid selection to choose from. In pink, Mrs. Miller, or the old Constance; and in dark shades, Herrick, Andrew Laing, Lord Rosebery, and Dryden, are each reliable. I still, on occasion, employ Vesuvius; its use saves better material, and as a colour it is effective. Then of Chrysanthemums there is no end, but I sometimes doubt if any are preferable to the soft white Mrs. Rundle, to Lady Selborne and Mrs. Dixon. These should always be accompanied with buds, either showing colour or not quite so forward; the arrangement is much enhanced by this simple addition. Of sorts not quite so old as these, I like Mrs. Field very much; it is greenish-white, and a rather touzled bloom. Libby Allan also is of much value, and blooms are produced from 6 inches to tiny things, but each perfect.

Of other common flowers a word may be said on behalf of the Semperflorens group of Begonias, of Rex Begonias, of Clerodendron fallax, of Amaryllis aulica, and of Salvia splendens. As a setting nothing is superior to Smilax, but in order to produce the most suitable material for this purpose, viz., that with small foliage, it should be grown from old roots, and not started till say, August. A fair number of Ferns can be used on occasion, and Asparagus in three or four species, is well known. Crotons of the angustifolius type, too, are perfect. All of these are of the easiest culture, and not difficult to produce in quantity without much outlay. As to arrangement, that is largely a personal matter, but no doubt all of us err in employing too much material. *B.*

NEW OR NOTEWORTHY PLANTS.

CRASSULA SEDIFOLIA, *N. E. Brown* (*n. sp.*).

THIS is a very pretty little plant, belonging to the same group as C. Cooperi and C. Bolusii, but perfectly distinct from both. Although a small plant it is exceedingly floriferous, and as it lasts in flower for a long time a good potful is very attractive. When out of flower the spotted leaves are also very pleasing. It was sent from South Africa by P. MacOwan, Esq., of Cape Town, in 1899, to the Royal Botanic Gardens, Kew, where it first flowered in August, 1900, and has been in flower for about two months this autumn.

Plant 1 to 2 in. high when in flower, perennial. Underground stems or root-stock ½ to 1½ lin. thick, brown. Leaves in small radical tufts, and three to four pairs scattered along the flowering stems, 1 to 3½ lin. long, ¾ to 1¼ lin. broad, and nearly as thick, sessile, not connate, turgid-oblong or ellipsoid, subacute, minutely mucronate, tapering to the base, somewhat flattened or slightly channelled above, very convex beneath, glabrous, sparingly ciliate with minute cartilaginous hairs, bright green, with a row of three to five red-brown spots along each margin, and sometimes one at the apex. Flowering-stems 1 to 2 inches long, erect,

usually cymosely, three to nine-flowered, glabrous. Pedicels 1½ to 5 lin. long, thickening upwards, erect, glabrous. Sepals ¾ lin. long, about ⅓ lin. broad, erect, distant, deltoid-oblong, acute, with submembranous margins on the basal part, glabrous, green. Petals five, slightly connate at the very base, 1⅓ to 2 lin. long, ¾ lin. broad, erect, subcuneate-oblong, obtuse, scarcely apiculate, longitudinally folded or channelled in the upper part, white, glabrous. Stamens five, shorter than the petals, filaments white, glabrous; anthers yellowish. Hypogynous glands minute, ⅛ lin. long, ¼ lin. broad, transversely oblong, truncate, whitish. Carpels four to five, turgid, tapering into a short style, reaching to about the level of the stamens, green, glabrous. *N. E. Brown.*

ALOE (EUALOE) SCHÖNLANDI, *Baker.**

This is a fine new Aloe of the section Maculatæ, nearly allied to A. latifolia, Haworth, from which it differs by its broader leaves, much more compound panicle, smaller flowers, and shorter pedicels. It has been cultivated by Dr. Schonland, at Grahamstown, and probably came from Cookhouse. We are indebted to Dr. Schonland for dried specimens and a photograph.

Acaulescent. Leaves densely rosulate, ovate, 9 to 10 inches long, 4 to 4½ inches broad, indistinctly lineate, copiously spotted with white; marginal teeth crowded, small, deltoid, pale brown. Inflorescence 3 to 4 feet high; racemes about ten, short, dense, 2 to 2½ in. long; pedicels ½ in. long; bracts lanceolate, as long as the pedicels, pale, with three distinct brown central ribs. Perianth cylindrical, bright red, an inch long, not constricted in the middle; tube short, campanulate; segments long. Stamens and style not protruded beyond the tip of the perianth. *J. G. Baker.*

ORCHID NOTES AND GLEANINGS.

CYPRIPEDIUM × NITENS "CLEVERLEY'S VARIETY.

A FLOWER of one of the finest Cypripediums of its class is sent by Mr. E. Cleverley, gr. to M. Fournier, St. Barnabe, Marseilles, with the information that its origin was from C. insigne Chantini × C. nitens superbum, which was doubtless correct. An idea of the flower will be obtained by imagining an enlarged form of that highest example of the C. i. Chantini section known as C. i. punctatum violaceum, and with the purple blotches about twice the size. The flat dorsal sepal is nearly circular, as in C. i. punctatum violaceum, the yellowish lower half having dark purple blotches about a quarter of an inch across, and the pure white upper portion with rose-purple markings nearly as large. The flower has the bright tints and fine substance of the variety known as C. × Mons. de Curte, but has not the narrowing folds at the edges of the basal portion of the dorsal sepal. Its nearest ally is C. "Mrs. Tautz."

ORCHIDS FROM BERLIN.

We have to thank Mr. Otto Beyrodt, of Marienfelde, Berlin, for sending flowers of a few extremely beautiful Orchids now in bloom with him. They include two very distinct forms of Cattleya labiata, the one with pure white flowers with a large violet-purple blotch on the front of the lip, and a lighter purple freckling between the white veining of the side lobes; and the other with blue-tinted flowers, the front of the labellum being of a decided slaty-blue tint. These are selected from an importation of 5,000 plants, it is said. The others are a fine pale yellow Odontoglossum named Albertianum, with brown spots on the segments. It is very near to O. crispum, though doubtless it is a natural hybrid—a form of O. × Wilckeanum; a flower of a very handsome Oncidium Forbesii, taken from a spike of thirty-five flowers; and a very singular and showy Cypripedium, said to have flowered out of an importation of C. callosum, imported direct from Siam. It has the appearance of being a cross between C. callosum and C. Boxalli, though how such a combination in a natural hybrid could be is not evident.

CYPRIPEDIUMS FROM MONKHOLME.

Out of the collection of the late Robert Tunstill, Brierfield, Burnley, the gardener, Mr. Balmforth, sends a fine series of Cypripediums, in evidence of the remark in his letter that the Cypripediums have been specially good this year. The yellow forms of C. insigne have three very fine examples, viz., C. i. Sanderæ, the best; C. i. Gladys, a new one, of a darker yellow tint, ranking next to it; and the large C. i. Chantini Lindeni, illustrated recently in the *Gard. Chron.* C. × nitens "M. de Curte" is a very handsome, heavily blotched flower; the forms of C. × Leeanum, named and unnamed, very good; C. × Optimum, a showy hybrid between C. × Leeanum giganteum and C. Charlesworthi; C. × Cowleyanum magnificum, cream-white, closely spotted with rose-purple; and a cross between C. Chamberlainianum and C. Leeanum giganteum, an improvement on the original form.

LÆLIA ANCEPS AND ITS VARIETIES.

I read with much interest Mr. de B. Crawshay's letter on this subject, especially as I have for many years been occupied with the vexed question of zoological and botanical nomenclature. I fear I may be looked upon as an iconoclast by those of us who are content with the so-called "auctorum plurimorum" system of nomenclature. In full view of that risk, I must nevertheless say that I have long come to the conclusion that the strict Linnæan binomial nomenclature is no longer sufficient for modern biological science. But before going further, I wish to point out that Mr. de B. Crawshay's letter proves another factor in this connection, namely, that much of the confusion in plant and animal nomenclature is due to the almost universal failing of confounding two totally different things under the term "varietas" variety. Linnæus used this term solely to indicate a geographical or local race, while at the present time, though many still use it in its proper original sense, a great number use it indifferently to mean either a local race or an individual aberration. To avoid this confusion, and to go back to my original assertion of the want of a new form of nomenclature, I maintain we must adopt the German and American zoologists' method of trinomial nomenclature, and at the same time abolish altogether the term "varietas," variety, replacing it by the two terms, "subspecies" for local races, and "aberration" for individual specimens differing from the normal type, such as albinos.

If this system be adopted, the great advantage is, that you can, by the method of writing the name, see at a glance the true relationship of the various plants or animals to each other. Taking as a maxim that a species is such that however closely two plants or animals may resemble each other, if there are no intermediate forms, they are distinct species; while however different two such forms may be, if there are intermediates they are not distinct species, but either sub-species or aberrations. If we adopt the trinomial nomenclature, we have the species as follows: Lælia anceps; and the sub-species written as follows: Lælia anceps Dawsoni. The test under the new nomenclature as to whether a form is a sub-species or merely an aberration is very simple, for if the extremes and the intermediates occur in the same place, they are only to be considered as individual aberrations; while if they occur in a different locality, or at different altitudes in mountainous regions, they are sub-species. The trinomial nomenclature is really no new invention, but merely consists of dropping out the word "varietas," for Linnæus would have called the plant Lælia anceps varietas Dawsoni. I only would add that it is often difficult to tell with cultivated plants, or animals in cages, whether a form is really an aberration or a sub-species, as the importers rarely divulge the place of origin correctly, from fear of trade rivals. *Walter Rothschild.*

CACTI.

FEW classes of plants are in such a state of confusion as regards nomenclature as are the Cacteæ, and in this case it is not "the gardeners," but rather "the botanists," who are to blame. Years ago the name "Cactus" covered all the kinds under cultivation. Possibly this simple arrangement was not strictly correct, and that plants which could by no chance be reconciled with each other were included under this one generic name. The solution of this incongruity was surely to disassociate those which were irreconcilable, and to constitute new genera as required for this purpose. What has, as a fact, occurred is, that some recent writers have re-arranged these plants into a number of genera founded partly or principally on leaves, stems, and leaf-spines, and have thus introduced a multiplicity of generic names founded on non-generic differences, and have generally brought about an era of confusion and difficulty. It may be argued that it would take too long to test plant by plant for reconcilability, that the flowers and fruit were generally too much alike to use as measures of disassociation, and that in the stems, leaves, and spines was found a ready means for subdivision. Yes; a ready means for subdivision, certainly. Possibly, even, for specific subdivision; but not means by which to build up new genera. The result of such efforts at nomenclature has been to disassociate into separate genera plants which will interbreed with freedom, as has been proved in these alleged genera over and over again in gardens. Such generic names cannot stand the working tests of Time, and must soon be overthrown in favour of something better and more orderly.

An instance came under my notice recently, in which some hundreds of seedlings were raised from one of the flat-stemmed or two-edged Phyllocacti, which had very inconspicuous and minute spines, requiring a microscope to see them. These seedlings had in every case four to six edges (or ribs) to the stem (in perhaps 85 per cent. they had five ribs). The spines were very large, and well developed in every case.

It is possible that in some species the number and individuality of the ribs and spines may be "fixed;" but this is not my experience of the majority of garden kinds. The bulk of these seem to be in a transitionary state in these respects, reverting, as seedlings, to the ancestral five-partite form. I lean, therefore, to the belief that in some Cacti (notable in Phyllocactus (?) and Cereus (?), the inconstancy of these characters precludes them from being used as a measure of even specific disassociation, without grave risk of error. There is more fixity in the partition of the stigma, although this is only relative; yet it seems approximately constant in certain species, at least.

I think that it would be better to go back to the old name "Cactus," now in disuse, to describe all the kinds which have been reconciled with Phyllocactus, Cereus, &c. The e consti ute the largest and most decorative gard · section of the order, and it would be a blessing if even this one section could be rescued from the confusion into which recent writers have plunged the whole order. *A. Worsley, Isleworth.*

* *Aloe* (*Eualoe*) *Schonlandi*, Baker.—Acaulis, foliis ovatis copiose albo maculatis, dentibus marginalibus parvis creberrimis deltoideis corneis brunneis; pedunculo 3—4-pedali valde ramoso, racemis abbreviatis, pedicellis floribus brevioribus; bracteis lanceolatis, pedicellis æquilongis; perianthio cylindrato pollicari, tubo campanulato, lobis elongatis; genitalibus inclusis.

VIOLAS.

"The old order changeth, yielding place to the new;" but the love of horticulturists for the fragrant Viola is steadfast and abiding; and, indeed, there are few garden treasures more worthy of such enduring affection. While it is one of the most beautiful and effective, it is also one of the most accommodating and easily cultivated of all our border flowers. Given fairly rich soil, adequate drainage, early planting (on the confines of the awakening and energising spring), and plenty of moisture when vigorous growth and bloom have begun, the cultivation of the Viola, under such conditions, is by no means exacting. There are, indeed, certain insects or birds (I know not which, for I have never yet been successful in catching them at their work) to which, in my own garden, the bright buds of certain varieties are very attractive, and especially, I deeply regret to say, the special Viola raised at Rothesay which bears my own name; but there are also a few others of fascinating hues whose embryonic beauties are attacked and annihilated in a similar way. I have tried preventatives of widely varying descriptions, but none of them as yet have been rewarded with success.

The Viola has lost several of its most eminent raisers within the last ten years. Chief among these have been Mr. William Dean, organiser of the Viola Conference at Birmingham, and a frequent contributor on the culture of his favourite flower to the London horticultural journals; Dr. Stuart, of Chernside in Berwickshire, the distinguished originator of the exquisite Violetta race, of miniature dimensions, but graceful form and charming fragrance; and Mr. John Baxter, of Daldowie, whose most celebrated creation (if such a term be admissible) was Duchess of Fife.

Violas may appropriately be divided into two sections: Exhibition varieties, and those more specially adapted, by reason of their free-flowering capabilities, for bedding purposes. Among the finest of the former are A. J. Rowberry, which I hope may perpetuate the name of an earnest cultivator, though it is not so prolific or easy of culture as some other Violas, while transcending them greatly in the size and splendour of its individual flowers; Archibald Grant, an old Viola of a rich blue colour, which for artistic contrast is still indispensable; Countess of Kintore, which has many fine derivatives, one of the most striking of which is Iona; Duchess of Fife, already referred to, whose delicate primrose colour, tenderly edged with blue, is very effective; Hamlet, a Viola of most distinctive hue; Lemon Queen, Lord Malcolm, Endymion, one of the grandest of the lemon-yellows; Lucy Bertram, Princess Ida, White Duchess, William Neil, Prince of Wales, and Crown Jewel.

Among Violas of very recent introduction Meteor, Lady Roberts, and Madame Melba (of which the beautiful variety last mentioned was named by myself, at the suggestion of Mr. William Cuthbertson), are likely to prove important acquisitions.

Of bedding Violas, my favourites are the following: Countess of Hopetoun, and Countess of Wharncliffe, the latter of which is notable for its fragrance; Niphetos, Bridegroom, Rosea pallida, Duchess of Sutherland, Lemon Queen, Sylvia (much prized by the late Dr. Stuart, by whom it was raised), Lord Elcho, Princess Louise, Mrs. Charles Turner, True Blue (a favourite production of Mr. William Dean), Crimson King, J. B. Riding, Rose Queen, Princess Beatrice, The Mearns, Archibald Grant, Blue Duchess (1900), and Bronze Kintore, which should also be very effective as an exhibition variety.

The grandest display of Violas I have ever had the privilege of seeing was at Rothesay, in the month of July. There they are grown by the thousand by the Messrs. Dobbie on the crest of a hill, commanding on the one side a superb view of the Bay of Rothesay, and on the other, of the magnificent mountains of Arran. In such a situation their impressiveness was supreme. *David R. Williamson.*

Fig 146.—LIVISTONA MUELLERI.
(The original plant left when the township of Cairns, Queensland, was laid out.)

LIVISTONA MUELLERI.*

Livistona is a small genus of Palms, the species of which are natives of northern Australia, Malay Archipelago, and China. L. Muelleri is fully described by Mr. F. Manson Bailey, to whom we are indebted for the photo (fig. 146) whence our illustration is taken. When a clearance was made for the township of Cairns, this specimen, the "type" of the species, was left. The species is known among its congeners by the presence of a thread in the sinus between the lobes of the leaf. The petiole is about 3½ feet long, and is armed with short, curved prickles; and the fruit is oval, and 6 inches long.

* *Livistona Muelleri*, Bailey, in the "*Queensland Flora*," 1902, p. 1683.

ILSINGTON HOUSE, DORCHESTER.

A visit to Col. Brymer's garden, near Dorchester, revealed one of the best crops of hardy fruits that I have observed in the autumn of the present year. It is true the season will be memorable for its light crops, and of Apples in particular, but in this instance Apples and Pears were in abundance. The garden is limited in extent, but its boundary walls and the sides of the walks are covered and edged with cordons and bushes, and

beside these there is an iron-trellised arch, spanning a path, furnished with fruiting trees. Espaliers of Cox's Orange Pippin, a variety generally very scarce this year, were well-cropped. As wall trees, Ribston Pippin, Mother Apple, and Peasgood's Nonsuch, were laden with fruits. The Pears are mostly grown as cordons, which is a method that admits of greater numbers of varieties being cultivated, with the pleasing result of a long extended Pear season. Of espalier-trained trees, some were carrying wonderfully fine crops, as for example Beurré Clairgeau, which was breaking down with fruit, as also Pitmaston Duchess. I remarked as doing well Beurré Baltet Père, Directeur Hardy, Emile d'Heyst, Margaret Marillat, Thomson's Glout Morceau, Doyenné d'Alençon, Doyenné du Comice, Conseiller de la Cour, Durondeau, Mme. Treyve, Magnate, General Todtleben, Marie Louise, Passe Crassane, Gansel's Bergamot, Beurré d'Esperen, Winter Nelis, Zephirin Gregoire, Williams' Bon Chrétien, and Souvenir du Congrès. Grapes, Peaches, and Plums are grown in a range of roomy lean-to houses, 400 feet in length. In a house having a northern aspect, one of the finest Lapagerias I have ever observed was aglow with numerous fine blooms, the variety being a good form of L. rosea, the plant covering about 80 feet run of the roof. The name of Col. Brymer has long been familiar as an enthusiastic Orchidophile, and his favourite plants are grown exceedingly well at Ilsington. The raising of Seedling Orchids has been successfully carried out by the Colonel, who is himself an expert, and his gardener also. *W. S.*

PLANT SANITATION.

PLANT sanitation must be considered for economic reasons. Increase of population necessitates larger food supplies. The fight of the farmer in Britain, and the planter in Greater Britain, must become more strenuous as competition, cheapness of transport, and the opening up of new countries go on. Yet while many means of producing larger crops and improved varieties have been devised and made use of, no means for keeping cultivated plants in health, or preventing the spread of epidemics, have been to any extent practised in Britain, or encouraged by the State.

That great loss of wealth has been suffered from diseases to plants, figures have been frequently adduced to prove. The Potato-disease in Ireland caused immense losses, and a disastrous famine. The phylloxera on the Vines of France reduced the yield of wine by 90 per cent., and spread to and affected other continental Vine-growing countries. Estimates have been carefully made to show that in Australia, Wheat-rust causes a loss of nearly £8,000,000 annually. In 1882, the Hop-aphis lost to Kent and Sussex alone about as much. In India, the annual loss by Wheat-rust has been calculated at not less than £91,000,000. In America, in 1882, before any steps were taken to mitigate these evils, the Agricultural Commissioner estimated the enormous sum of from £40,000,000 to £60,000,000 as the amount of waste due to insect diseases alone. Ceylon suffered to the extent of probably over £15,000,000 by the Coffee-leaf disease, which led to the ruin of the industry in that island. All these estimates must from the nature of the data be only approximate; but even if they err on the side of exaggeration, it is plain that vast losses have occurred through diseases to cultivated plants.

Can these losses be reduced, or to any extent avoided? The answer to this question is found in other lands more than in our country, though in some cases in Britain diseases have been treated with success, and the cultivator has benefited by his intelligent action. Germany and America are in the van in proving the value of knowledge gained and put into practical form in the use of sanitary measures for plants. The Vine-industry in France, Italy, Germany, Maderia, and other Grape-growing countries, was almost ruined by the phylloxera, until means were found to minimise the attacks, and varieties of the plants were discovered in other countries which were immune from the ravages of this destructive insect. The Vines were still suffering from phylloxera, when a mildew or blight, due to a fungus, began to do serious damage to crops. Through a fortunate accident—the spraying of vines by the roadside with blue-stone to prevent pilfering of fruit—a fungicide was found for this disease, which prevented the extinction of the Vine, and is still recognised as the most important substance for spraying in leaf diseases. In America, among other industries, Orange-growing and Vine-culture have been relieved from various diseases, and organised campaigns have kept the many insect and fungal enemies of these important cultivations in check; and in many Wheat-producing countries, sterilisation of Reed-corn before sowing has done much to exterminate smut-diseases.

The large bodies of workers in these countries are to a great extent helped and encouraged by the fact that the people for whom they are working have an intelligent knowledge of the methods and results of plant pathology and therapeutics. In America—where money's worth is required for money—£600,000 per annum is spent in supporting a large staff of experts, whose efforts are directed to the improvement of agricultural methods, crops and stock, the introduction of new plants, and the prevention and cure of epidemic diseases.

It is true that there are cases of plant disease which have not been to any extent lessened or prevented by science. But even in the much older science of human medicine failures might be mentioned, and yet these still unsolved problems of the doctor do not in any degree shake the faith of thinking men in the value of medicine and surgery. The plant doctor has frequently to submit to the half-hearted carrying out of preventive methods, or the refusal to do anything at all to interfere with the progress of a disease. I myself, when advising the proved and practicable remedies for a certain disease, have been met with the remark: "Don't you think that if I got rid of this disease in my trees I should only get some other?" The mixture of ignorance, apathy, and fatalism, shown in this reply is, to say the least, not encouraging. Further, the plant therapeutist does not possess one of the chief weapons of the doctor and the "vet." against contagious and infectious diseases — isolation. Were it possible in the case of a rusted Wheat-field, a cankered Larch-plantation, or a blighted Potato-crop, to isolate the diseased plants and prevent them from contaminating their neighbours, the plant doctor and the farmer would have a far easier battle against these diseases. The agriculturist is wont to complain that the number of diseases by which his crops are affected is so great; but comparing any species of cultivated plants with man, the horse, the dog, or other domestic animal, we do not find that the diseases suffered by them are less in number than those we deplore in our plants. Plant diseases are on the increase—for very evident reasons. In the economy of Nature, the intermingling of species of plants with others differing in structure, habits, and inherent characters, hinders the progress, and endangers the existence of the organisms which cause the largest proportion of our epidemics. The spread of such diseases among human beings, sparsely scattered over a wide area, is low. In closely-packed populations the prosperity of the organism causing the evil is most marked. But the multiplication of large areas of plants of the same kind destroys the natural equilibrium, and increases the danger of epidemics. This danger calls for corresponding precautionary measures. A hundred years ago the conditions favourable to the rapid spread of a disease caused by insect, fungus, or bacterium, were very much less than at the present day. But our weapons for an intelligent fight against the attacks of these organisms were then of little use, and were wielded without confidence. We have now, as in human therapeutics, got past the "bleeding for all evils" stage, and our weapons are of no mean order. Man's power over the organisms which injure cultivated plants is immeasurably greater than it ever was before, and his knowledge of the plants themselves is equally extensive. Indeed, in many ways the knowledge of plant pathology and therapeutics will bear comparison with that of human and veterinary medicine.

All efficient measures for the preservation of health, whether carried out by individuals or communities, rest upon exact knowledge of the causes of diseases, and the effects they produce in their victims. It is a matter for congratulation that there are a host of instances of the accurate tracing, by observation, of the causes of many diseases of plants. This has been accompanied by experiment, and it needs no argument to convince anyone in the least acquainted with inductive science, that experiment is as essential as observation. The science of plant pathology and therapeutics has its giants, whose brilliant work has gained valuable positions in the advance of knowledge. Hartig, Tubeuf, Frank, and others, will be remembered as the pioneers in a science the importance of which, from an economic point of view, will by-and-by be as fully recognised as medicine or veterinary science. During the past fifteen years, the discoveries made in combating insects and fungi which are parasitic on plants have made almost a revolution in agriculture, though this has not been so much felt in Britain as in other countries. The conservatism of the British farmer is a very marked character, and leads to great delay in accepting the lessons learnt outside his own sphere.

The general laws of sanitation in plants do not differ very much from those laid down for preventive medicine in man or animals. They include the removal and destruction by burning of dead plants, or dead parts of plants, suffering from communicable diseases, as soon as the outbreak is noticed, and before it has widely spread; the prevention of conditions which favour infection; the isolation, by means of trenches, of plants whose roots are diseased; and the exclusion or quarantining of plants from infected countries. These are but examples of sanitary methods which should commend themselves to every practical man, and have been used with great success in numerous cases. They are, however, almost useless without an intelligent watching for the appearance of disease, such as every careful mother or shepherd exercises in the family or flock. It is not unusual to find a lack of observation in noticing the appearance of blights on crops, so that the evil is not considered until the fields are most markedly devastated. Observation, too, does not always lead to intelligent action. The farmer who seeing "smut" in his Wheat takes no measures, and attributes it to the prevalence of "the male plant," is not a myth, and may still be found in Britain. It is necessary, when sanitary laws are announced, that they should receive the support of those they are intended to benefit, and a belief in such rules must be inculcated in those engaged in cultivating plants. *J. B. Carruthers, in "Contemporary Review" for May*, 1902.

(To be continued.)

PUBLICATIONS RECEIVED. — *Cassell's Saturday Journal*, November 26 One thousandth number.— *Journal of the Department of Agriculture for Western Australia*, October. Contents: Irrigation and Root Management, by A. Despeissis; Agricultural Lectures (abstract of), by the same authority, &c.

WEST INDIES.

DAMAGE TO CROPS AT THE LAST ERUPTION AT ST. VINCENT.

The following notes from a report by the Curator of the Botanic Station at St. Vincent, and the Agricultural Instructor, on the damage done to the crops by the eruption of October 15, has been taken from the last number of the *Agricultural News*, just to hand. Messrs. Powell & Osment say that the damage to crops in general over a large area of the Windward coast is severe, and in consequence the agricultural outlook at the present time is gloomy in the extreme "At Kingstown the depth of sand was from one-eighth to a quarter of an inch. This gradually increased in thickness right on to Georgetown, and at Mount Bentic the new deposit averaged 6 inches deep. At Hopewell and the upper part of the Mesopotamia Valley, the 'wail' of the people, as at other places, was that their provisions were being burnt up. This was in a sense, indeed true, more particularly so where the sand was a couple of inches deep. The day was very hot, and as no rain of any consequence had fallen during or since the eruption, the sand had been so acted upon by the sun as to be almost roasting hot. . . . The prostrate canes can be made into syrup, and the people were advised to attend to this without delay. In several localities the allottees had planted large plots of various provisions after the damage done to the permanent crops in May. These provision crops have now been destroyed, and their loss has made the people very despondent. The fine Cacao cultivation at Mount William has received further damage. The branches of numerous trees were bent downward, and hardly a flower was noticed. The Cacao season has commenced, but not a single pod was seen on any of the trees, so serious was the damage of May 7. On some of the arrowroot estates the difficulty that has arisen in regard to the water-supply will probably result in the abandonment of the manufacture for a year or so."

Commenting on this, the editor of the *Agricultural News* says the probable temporary abandonment of the arrowroot industry on some of the estates is a serious blow to the welfare of the island. *John R. Jackson, Claremont, Lympstone, S. Devon.*

SEED TRADE.

THE SEED CROPS OF 1902.

It is now possible to give what may be regarded as a final estimate of the seed crops of 1902. Generally there is a serious shortage almost all round, and the outlook for the wholesale seed trade is one of considerable anxiety, especially on the part of those houses which may have booked large orders on journey, when the prospects of a probable yield were somewhat assuring. However, the deficiency has to be faced, and made the best of.

Peas.—Peas represent the largest bulk turned over by the wholesale trade, yet the crops of all the varieties are extremely short, and in the case of most of the early dwarf wrinkled varieties, such as American Wonder, which represents a section of Peas in increasing demand, there is almost a total failure, and prices must range very high. The causes of the failure are not far to seek, they are included in the untoward incidence of the weather, the absence of sun, the frequency of rain showers, and no strong-growing weather. Late Peas in particular have suffered severely, though some of the taller-growing of the late varieties have given a moderate crop. Of late years there has been an extraordinary development of the trade in Peas, and in order to supply the quantities required, the seed-houses have found it necessary to obtain supplies from other countries; but foreign growers are in the same plight as those at home, if not in a worse one, and they are now to be found in our markets in the character of purchasers instead of as sellers. One thing appears certain—the Peas will in some cases be found stained from the effects of the weather, and that there will be impaired vitality seems equally certain. The colour of the seeds when imperfect has a prejudicial effect on the minds of those who buy.

Broad Beans.—There is a great deficiency of Beans, both Longpods and Windsors, and for the reasons assigned in the case of Peas; and the samples in some instances being stained, they will be very disappointing. Last year there was experienced a comparative failure of this crop from the drought and the ravages of the smother-fly; this year the failure arises from an entirely different cause. Broad Beans are certain to be very scarce.

French Beans.—Dwarf and Runner Beans have also yielded a very short crop, the dwarf varieties especially are very scarce; and it may be stated in reference to some of the most popular varieties, such as Sutton's Canadian Wonder, that the extraordinary demand for the variety just named, in particular from South Africa, where it succeeds so well, operates, by the despatch of stocks, to make the deficiency more severely felt in this country.

One fact may be noticed in relation to Beans. There appears to be a growing demand for the stringless green-podded varieties, which have had their origin in the United States of America, where they are very popular; and this popularity is extending to this country. The best type of this kind of Bean is that known as Burpee's Stringless Green-podded Dwarf.

Beet.—This is probably the most satisfactory crop of the year, taking all things into consideration; the yield of seed has proved larger than was anticipated. This is also true of the varieties of Mangel Wurzel, which at one time in the month of July appeared in great danger of being severely injured by the aphis which affects this plant, but which happily succumbed to the low temperature prevalent at that time of the year.

The Cabbage Tribe.—All the representatives of the Cabbage have probably suffered more than any other crop, and it is not too much to say that the results are miserable. The crops of the Cabbage and its allies are a source of the greatest possible anxiety to the dealers. In the course of a recent conversation with Mr. S. B. Dicks, of Messrs. Cooper, Taber & Co., he mentioned a case of a field of Cabbage being grown for seed, of 10 acres in extent, which in March of this year was calculated would produce from 8 to 10 cwt. per acre; from that time, owing to the unkind summer, the crop gradually declined, and the entire yield of the 10 acres is 9 cwt. only—really a very serious failure all round.

Carrot.—Largely owing to the fact that the weather was so cold and sunless during the summer, that the worm, which is often so very destructive to the inflorescence of the Carrot-plant, was checked in its depredations, the crops have proved larger than was at one time anticipated, and it is said prices may range from 25 to 30 per cent. cheaper than last year. Short Carrots have produced a larger crop than the long ones, for in some localities, owing to the misty rains which prevailed for days, producing after all but little real rainfall, the soil became very dry at the bottom, and many crops failed from drought in a season generally designated a wet one. Carrot-seeds are now very largely sold as clean seeds, that is to say, the bearded coverings to the grains are now removed by means of elaborate and expensive machinery, and thus a pound weight of clean seed occupies much less space than a pound of bearded seed.

Leek.—This shows a moderately good crop, and there is no appreciable deficiency of the best varieties.

Onion.—Onion has seeded fairly well, though the seeds lack plumpness, and consequently weight. The Onion is a plant which flourishes in rain alternating with sunshine. In cleaning the seeds received from the growers, a very large percentage of worthless seeds have been blown out when being passed through the machine.

Radish and *Spinach* are probably among the best harvested crops of the season.

Turnips, including the Swedish types, have furnished better crops than for the past two or three years.

Lettuce and *Endive.*—Of these, the former is a very light crop indeed. With the exception of a few of the winter varieties, they are a somewhat abundant crop. Endives show tolerably good results.

Herbs.—Some of the early flowering varieties, such as Sage, Summer Savory, &c., yielded but little seed; the May frost destroyed the early blossoms, and they were useless as seed-producers. Such a deficiency of seed of some of the herbs has not been known for years.

In the face of this record, it is of course to be expected that the vitality of all kinds of seeds will be very defective, and growers should make a point of sowing thickly. A great many weakly seeds will germinate in the soil, but they will lack the vital force necessary for them to make fruitful plants, and will perish in consequence. Despite a shortage of produce in the case of some agricultural seeds, prices generally are moderate, and one cause for this is, that at the time for sowing, a good plant was obtained from the first sowing; while in some seasons it has to be repeated three or four times. Another is found in the diminished use of such crops, for according to the returns published by the Board of Agriculture, the acreage sown down with root-seeds this year is much less than last year, and this of course means a lessened demand for seeds. *Pisum.*

CALUMBA ROOT AS A SUBSTITUTE FOR HOPS.

That the failure of any special product opens the way for substitution, is indicated in the trade report of a contemporary, a week or two back, when it was stated that the serious damage done to the English Hop crop by the great storm in Mid-Kent had led to a considerable revival of interest in Calumba root, and that with a good demand, mostly speculative, prices advanced several times during the week, and at the close stood at about 9s. per cwt. higher than in the preceding week; from 20s. to 25s. and 30s. per cwt. was asked for different qualities as imported. Although it is acknowledged that English Hops will be dear this year, our contemporary remarks that the probability of Calumba being used by brewers as a substitute, is remote. The reference, however, raises again a suspicion that at one time generally prevailed, that Hop substitutes were more commonly used than the public were aware of. It may not be known to all that Calumba root is the produce of Jateorhiza Calumba, a climbing Menispermaceous plant, indigenous to the forests of Mozambique, from whence the roots are imported. They vary much in size from that of a Parsnip up to the thickness of a man's arm, or even more. As seen in the market, they are mostly sliced and dried. The drug is considered a valuable bitter tonic where stimulant or astringent effects are not required. *John R. Jackson.*

THE CULTURE OF MONTBRETIAS.

This hardy bulbous plant is one of the most useful and effective subjects in cultivation for supplying a profusion of cut flowers out-of-doors from the middle of July to the middle of October, and for which purpose the Montbretia has but few, if any, equals: the long arching, branching spikes of scarlet-orange and golden-yellow flowers, springing from the centre of the pale green Gladiolus-like foliage to a height of from 2 to 3 feet, being everything that can be desired in a flower for decorative purposes. The spikes are admirably adapted for mixing with other flowers of different shades of colour for filling vases for the adornment of dinner-tables, rooms, &c. Out of the twenty-seven or thirty varieties of the Montbretia in cultivation, our old and well-tried friend, crocosmiæflora, still holds its own, in my opinion, against all new comers.

The present is a good time to plant Montbretias for cutting from, either for marketing or to meet the demand in private establishments in which large supplies of cut flowers of this description are essential. In this latter connection, the bulbs should be planted in drills, 2 feet asunder and about 3 inches deep, and at the same distance from bulb to bulb in the rows, in ground into which a good dressing of short manure has been dug, afterwards closing the soil over them with the feet, as in the case of drills of Peas. Where rows or clumps of established plants are available, they should be taken up and divided, shaking the soil partly off the roots in doing so, and then transplanting them in bunches of three or four plants 6 or 9 inches apart in shallow trenches, into which a coating of well-decayed manure has been dug, covering the roots with the excavated soil to the depth of about 3 inches. When the foliage has died down—or before then, for that matter—a surface-dressing of manure laid on between, and close up to, the rows of plants will prove of great advantage, and tend to the production of extra large spikes of well-developed flowers in abundance next July and two following months.

Irregular patches consisting of nine or ten bulbs planted in the herbaceous border in holes 3 inches deep and about the same distance from one another, will in due time add variety and beauty to the effect produced by the various other occupants of the borders.

As a pot plant for decorative purposes, the Montbretia is almost unrivalled in its graceful habit and floral beauty, and its general suitability for grouping and other floral arrangements in which pot plants are employed.

Pots of 4½ inches and 6 inches in diameter are the most suitable sizes in which to grow Montbretias for the purposes indicated above. Place a largish crock, the hollow side downward over the hole in the bottom of each pot, following with several smaller pieces and a few half-decayed leaves, or a little moss to ensure good drainage. This done, fill the pots to within 2 inches of the rims with a compost consisting of three-parts light loamy soil and one part of leaf-mould and well decomposed stable manure (free from worms). Make this moderately firm before inserting the bulbs therein, putting five large, even-sized bulbs in each 4½-inch pot, and nine in the 6-inch ones, and covering the bulbs with some of the same compost up to the rims of the individual pots, making this fairly firm in doing so. Then stand the pots closely together on coal-ashes in a situation where water is not likely to accumulate at any time, and cover them to the thickness of 2 or 3 inches with sifted coal-ashes or other suitable material, pressing this down level on the top and round the sides of the pots thus enclosed with a spade or shovel.

Six or eight weeks from the time of covering them, examine two or three of the pots, or rather the contents of the pots, in the centre of the batch so covered, and remove any bulbs that have made about one inch of growth to a frame or cold pit, giving them a position near the glass, and shade heavily at first for a few days until the blanched growths have become inured to sunshine, afterwards affording, during favourable weather, sufficient air to ensure a sturdy growth in the plants. When the latter have made about six inches of top growth, they may be removed to a heated pit, or placed on a shelf near to the roof glass in a greenhouse or any similar structure in which a minimum temperature of from 45° to 50° is observed. The soil should be kept uniformly moist about the roots during the whole period of the plant's growth.

As soon as the flower-spikes appear, applications of weak liquid-manure should be made at the roots, two or three times a week, alternating these waterings with occasional top-dressings of some reliable plant-food immediately before applying clear water. Thus treated, the plants will in due time amply repay for the trouble and care bestowed on them, and will also elicit words of praise and admiration from those who may not have seen the Montbretia growing in pots. *H. W. Ward.*

FLORISTS' FLOWERS.

RAISING SEEDLING CHRYSANTHEMUMS.

One of the troubles which affect raisers of Chrysanthemums from seed, and there seem to be many such raisers now, is that myriads of otherwise beautiful flowers have to be cast on the rubbish-heap because only those will get awards (and therefore have enough commercial value to make it at all worth while to put them into commerce) which are of great size, bulk being now regarded as an essential feature to secure a Certificate or an Award of Merit. It is to be deplored, whatever may be the standard of the N.C.S., in the main as an exhibition society, and nothing else, that real merit as a garden, greenhouse, decorative, or market flower does not find readier acknowledgment at the Drill Hall, where it may be assumed that the Floral Committee may have other and broader ideals than prevail at the Aquarium. Without doubt, myriads of beautiful things are from time to time raised that would give a wealth of lovely flowers for domestic uses, that do not, for the reasons named, find their way into commerce.

I looked in on Mr. C. Carpenter, one of these quiet raisers of seedlings, at West Hall, Byfleet, the other day. I found a very marked feature of his large collection of Chrysanthemums then in bloom was the many rich crimsons and deep reds, all of his own raising, and many of them very beautiful; but not one would stand the least chance of getting any floral award, yet for many ordinary uses, and especially to grow in bulk for market purposes, they would be very useful. But these dark-hued varieties seldom run large; hence we see in show-stands whites and yellows, of which we have too many, always dominating. Because these run large, generally we get a score of new ones certificated each year; the result is, that so many of them differ in little else but in name. In the darker hues there is ample room for variety, *A. D.*

Striking Chrysanthemum Cuttings.

The most conspicuous advantage of making an early start with the cuttings is, that three, or even four well-finished blooms may be cut from each plant; also, to be successful with varieties of which Madame Carnot is a good type, a long season of growth is necessary to sufficiently mature the wood. The present month, however, is late enough to propagate the majority of Japanese or incurved varieties, where the plants are expected to yield more than one blossom of exhibition quality; but where space and time are just now limited, many if not all varieties will develop one large blossom in a 6-inch pot from cuttings struck in March, or in many instances as late as April or May—and this method now obtains largely, both among gardeners and in the trade, because of the dwarf stature of the plants, as well as the first-rate quality of the blooms.

Fresh loam and leaf-mould—a slight preponderance of the former—with a fair amount of sand, forms a good compost for the cuttings; and a shallow frame, wherein a temperature of 45° can be maintained, is a suitable contrivance in which to strike them.

The following Japanese varieties of recent introduction have been prominent at leading exhibitions:—W. R. Church, large crimson, tipped green; Mme. Paola Raedelli, cream, tinted rose; Bessie Godfrey, canary-yellow, of large size and dwarf habit; George Lawrence, of good substance and colour, a rich golden-bronze; Nellie Bean, lavender-pink, of easy culture, coming good on any bud; Mrs. J. C. Neville, a white variety, of even larger proportions than Madame Carnot. *H. J. G.*

FORESTRY.

PLANTING YOUNG FOREST AFTER FELLING THE OLD TREES.

There is no subject so interesting as forestry—at least, to those who love trees. Excepting on poor or exhausted soils, not much difficulty is experienced in getting young forest trees to grow satisfactorily, other conditions being favourable. It often occurs that the slope of the land on some estates is so steep that nothing but trees can be grown, and it may be that a large number of trees in a plantation are of fit size and age for felling, or it may be decided to clear some few acres only of trees, and plant young ones when timber is removed, as neither the proprietor nor the forester like to see the ground unoccupied; pits are dug out in the usual manner, and trees planted, but the ground to a certain extent is exhausted of plant-food, and the ground overrun with a network of roots. The common practice is to let the ground lie unplanted for three years; but why not apply artificial manure instead? or a handful or two mixed with the soil thrown out of the pits would, I am certain, have a most beneficial effect on the growth of the plants, quite as profitable as allowing the ground to remain unplanted, or to grow nothing better than weeds. Nurserymen manure their tree-plots heavily, finding their reward in vigorous young trees, and these are grown on the same ground where young trees have been before, so that there is often no change in the species of tree grown. As regards the practice of felling and planting immediately afterwards, I may say that I saw a very instructive example a few years ago in the Midlands, where about 15 acres of Beech were felled and cleared off, and the land planted forthwith. More than half of the trees died the first year, the gaps being filled up the next winter, and of these a good number failed. A third time the gaps were planted up, and these trees are the best, and will always so remain; whilst those which were planted the first have a stunted appearance, and are not likely to make good timber. *J. J., Galloway.*

[It is a good system to get persons to take such land rent-free, on the condition that they grub up the roots and fill in the holes, dig or plough it, and plant Potatos, Cabbage, Seakale, Onions, or any useful farm or garden crops, for three years. The roots, stumps, &c., of which the land is cleared, should go to those who dug them up. After cutting through the chief anchoring roots of large trees, not a difficult work to drag the butts and main roots out of the soil with a few horses, especially if the wood is split to pieces with gunpowder or dynamite. Ed.]

LANGLEY CRAB.

Our illustration (fig. 147), affords our readers an excellent idea of a Crab, the result of crossing the John Downie Crab with King of the Pippins Apple. The fruits are conical in shape, of a yellow colour, very abundantly produced, and remain upon the branches till late in the year; hence the tree is valuable as a decorative object in the shrubbery. It was raised by Messrs. J. Veitch & Sons, Chelsea, and exhibited by them at the meeting of the Royal Horticultural Society on November 18 of the present year.

Fig. 147.—Fruiting spray of Messrs. Jas. Veitch and Sons' new "Langley Crab."

BULB GARDEN.

COLCHICUM GIGANTEUM.

We owe the introduction of this plant to Mr. Max Leichtlin, from whom I received it in the course of the summer of 1901. It flowered the same autumn, but as is frequently the case with imported and dried-off bulbs, it bloomed at an earlier date than it is likely to do when properly established. Last year it came into flower about the same time, and suffered considerably in comparison with the fine C. speciosum and two of its finer varieties I have here, but this autumn it has been later of coming into bloom than they, with the result that it has been more appreciated, seeing that these fine Meadow Saffrons were over before it came into flower. Like many other specific names of the same character, that of giganteum is rather an unfortunate one, likely to convey a false impression as to its size as compared with others of the genus. It is certainly larger than many of the Colchicums, but it is smaller than either C. speciosum or C. Bornmuelleri, although of much the same form. Compared with these last year, it looked small, but as they are now over for the season, it is the tallest and largest of the genus in bloom; its colour is pleasing, being of a soft rosy-purple, while the flowers are of good substance, and held erect on stout tubes, which stand the weather well. The blooms have only a little of the chequering which is so characteristic of the greater number of the Meadow Saffrons. The foliage, produced in spring and lasting for a while in summer, is large and effective, though many object to the Colchicum leaves, one must admit. The precise place in the genus of this Colchicum ought, I think, to be among the speciosum forms, though its later blooming, its softer colouring, and the less marked white at the base of the segments, mark it out as at least a distinct variety. Although high in price, it is a recommendable variety for those who are admirers of the few hardy flowers of its class of the open garden in late autumn.

S. Arnott.

COLCHICUM CILICICUM.

This fine Meadow Saffron, which is now (late October) in bloom, is one which is likely to become plentiful in cultivation, as it is being largely introduced through Mr. W. Siehe, of Mersina, who seems to have had it collected in quantity, judging from the moderate price at which it is procurable in this country. Although not so large as some, it promises to be a most useful Colchicum, owing largely to the bright colour of its segments. As it has bloomed with me the flowers are more of an open cup-shape than are those of many of the Colchicums. This adds to the effect of a mass, which will be found the best way of growing this and other Colchicums, which are not so scarce as to be difficult to procure in quantity. The colouring may be said to come in almost half-way between that of the typical form of Colchicum autumnale and that of the fine C. speciosum, being warmer in shade than that of the former, and less ruby-coloured than in C. speciosum, though it eventually dies off a rather deep purple; the blooms are only slightly chequered. This Colchicum, when fully expanded, has flowers measuring close on 3 inches across, without any artificial flattening. As the foliage has not appeared, I am not in a position to remark upon it. C. cilicicum is not to be found in Mr. Baker's "Synopsis," read before the

Linnean Society in 1879, nor in the volumes of the *Index Kewensis*; but, according to the 1900 supplement to Nicholson's *Dictionary of Gardening*, it is a form of C. byzantinum, which one observes that it much resembles. It is, however, brighter and deeper in colour than that fine Colchicum. *S. Arnott.*

COLONIAL NOTES.

VICTORIAN VINEYARDS.

Some five-and-thirty years since—perhaps more, Victorian wine was placed on the London market, and the present writer sampled it with unsatisfactory results; flavour, bouquet, taste, were all strong, and a taster remarked that the sample ought to be dubbed "old boots"; but the years have passed, and the Australian vintage generally has come to be thoroughly appreciated—"Victorian" among the rest. But what is in a name? According to a French journal, the product of a very large vineyard has been named "Monsieur Joseph Chamberlain." Why? Possibly in advance of a triumphal return of the Colonial Secretary from South Africa; perhaps something else—the weather during the season having been very unequal. To return to Victoria. It appears that the number of vineyards in the state, 2,469, shows a falling off—17; and the area of bearing Vines, 25,658 acres, a shrinkage of 2,430 acres as compared with last year; but the area of non-bearing Vines, 2,934 acres, shows an increase of 388 acres. Of the 497,269 cwt. of Grapes gathered this year, 304,842 cwt. were used for making wine; 90,263 cwt. for making raisins and currants; and 102,191 cwt. for table consumption or export. The three districts, Rutherglen, Yac, Randandah, between them produced 1,033,588 gallons of wine, but as compared with the whole state, the irrigation settlement contributed, in 1901-02, 2,709,191 lbs. of raisins and 203,384 lbs. of currants, from an average of 2,847 bearing Vines. Of course, as the present non-bearing Vines come into bearing, the output will be considerably increased. *X.*

VARIORUM.

Notes from St. Helena.—During the past two years the little "lone isle of the sea" has occupied as much public attention as it did during the imprisonment there of the great Emperor—the Boer prisoners have taken his place; and now that they, too, have departed, some notes of ordinary everyday interest may be submitted. We learn that market-gardening was most profitable during the time the prisoners of war were in the island, for the demand for fresh vegetables was greater than the supply, consequently prices were very high. Unfortunately, there was a long period of drought, which caused much loss in green crops. In the botanic department the energies of the Governor were devoted to the establishment of nurseries for young trees at Plantation, under the charge of a young German gardener, a prisoner of war. Some thousands of young seedlings, chiefly of various species of Eucalyptus, were planted out in beds, and offered for sale at low prices, but the drought caused the loss of a large number, irrigation having had to be stopped owing to failure of the springs, all the water being required by the garrison. Many young trees, however, were sold at good prices. A large number of cuttings of a species of evergreen Fig were prepared for planting in rocky places on the road from Jamestown to Plantation, where holes had been dug for them. This tree, which is large and umbrageous, grows readily from stakes cut about 3 ft. long by 3 ins. in diameter. Excellent Coffee can be grown on the island; in 1901, out of a small plantation of about 200 trees, 500 lb. of dried Coffee were got; this year was not a good one. The public gardens suffered somewhat by the presence of prisoners—now all is being put right

The Week's Work.

THE HARDY FRUIT GARDEN.

By J. Mayne, Gardener to the Hon. Mark Rolle, Bicton, Budleigh Salterton, Devonshire.

Pears.—Continuing my remarks upon pruning in last week's issue, I advise that a beginning should be made with wall trees. Aged trees having unduly long fruiting spurs should have these reduced to 6 ins. in length, measuring from the face of the wall, a practice that should be followed annually. If the pruning-saw is used for this purpose, wounds should be made smooth with the knife. The pruning of the Pear is nearly similar to that accorded to the Plum, as regards the shortening back of the spurs beyond where they were stopped during the summer, with the exception of a few varieties, such as Jargonelle and Marie Louise, which bear more or less at the extremities of the shoots, which should not be shortened unless they have got too far from the wall. In every case the Pear-pruner should ascertain the habit of the tree before commencing to prune. The shoots that are laid in for extension often have a blossom-bud at the tip, and all such shoots should be shortened back to a wood-bud, whether on horizontal, cordon, or fan-trained trees. Trees two or three years from the graft must be cut back to a point whence the extension shoots are required to spring, allowing a space of 12 inches between each tier of branches, and training an upright shoot in the centre to continue the stem; whichever style of training is adopted, except the cordon, it is merely the manipulation of branches that alters the form. Bushes and pyramids should be kept fairly open in the centre, shortening leading shoots to points within 12 or 15 ins. of those of last season; and where spurs are very numerous as is the case on aged trees, thin them severely, then larger foliage and finer fruit may be expected the following year.

Apples.—The pruning and training of the Apple is almost identical with that of the Pear, so that a repetition of directions for these operations would be superfluous.

Strawberries.—In this part of the country where so much rain has fallen, the land would be all the better for being lightly stirred with the digging-fork on dry days; and on light soils, plantations of two or more years duration, would be much benefited by a top-dressing of refuse potting-bench soil, wood-ashes, soot, well mixed together, and if the ground is impoverished, a small quantity of farmyard manure should be mixed with it. When spreading this mulch, place it close up to the root-stock of the plants. Planks should be laid on which to wheel if the ground is not hardened by frost.

The Fruit Room.—There seems to be general complaints of Apples and Pears keeping badly this season. This is not a matter for wonder considering the comparatively sunless summer. The fruits should be examined, and those showing the least sign of decay removed, as they soon affect others. The varieties Wyken, Cox's Orange, and Blenheim Pippins, should now be at their best. Of Pears, we have Beurré d'Anjou, Winter Nelis, Knight's Monarch, Marie Benoist, Glou Morceau, and Nouvelle Fulvie, whose fruits will carry us on well into January.

THE ORCHID HOUSES.

By W. P. Bound, Gardener to J. Colman, Esq., Gatton Park, Reigate.

Oncidium ornithorynchum.—When the new growth attains the height of 2 inches and new roots are becoming visible, potting or surfacing, as the case seems to need, should be carried out, the compost used being the fibrous parts of peat three-fifths, clean chopped sphagnum one-fifth, and leaf-soil one-fifth. Pots or pans, unperforated at the sides, should be made use of, a few crocks being put in the bottom, and above these chopped up fern rhizomes taken out of the peat, half filling the pot, &c. The compost should be put in rather lightly, and the bottom of the plants kept on a level with the rim. As a finish, stick in a few clumps or heads of sphagnum. Water should be very sparingly applied during the winter, and a light position found for the plants in the cool intermediate-house.

Cattleya maxima.—This variety is in flower at the present time. It is a distinct plant, and one of considerable value in the early months of winter. When a plant ceases to flower, but little water should be afforded till the spring. This plant and Cattleya gigas may be treated alike.

Cattleya intermedia.—When the new pseudo-bulbs are approaching their full size, afford just as much water as will prevent shrivelling, otherwise the plants will begin to grow anew, and fine flowers not be obtained from the present growths; but as soon as the flower-buds become visible at the base of the sheaths, water should again be applied more freely.

Cattleya quadricolor (syn. chocoensis) and C. Percivaliana.—On these plants the flower-buds have become visible in the sheaths; the lightest available position should be afforded them, and providing they are well established, a fair amount of water may be applied whilst the flowers are being developed, but reducing it when flowering ceases until spring arrives.

Cattleya Trianæ.—Rather more water should now be applied, and the plant afforded a very light position till the flowers are in course of development.

Odontoglossum Rossii and its varieties.—Free-flowering Odontoglossums are throwing up their flowers, and sufficient water should be applied to moisten the compost. They do well suspended in the cool-house, and in positions where full sunshine can reach them at this season.

Sophronitis grandiflora is now coming into flower, and it is necessary that the plant should be exposed to full sunshine in the winter season, and be grown in the cool-house. But little water will be needed at the root, the humidity of the house almost sufficing to keep a plant in health.

Oncidium macranthum, O. monachicum, and O. serratum.—The training of the flower-spikes of these plants should have frequent attention, as, owing to their trailing nature, they require some kind of neat support, and I have found the spiral coils which some people use for supporting the flower-stems of Carnations very suitable. The flower-spikes have somewhat the appearance of the coils, and the latter are inconspicuous. During the short days these species need a very small quantity of water, and a place in the warmer parts of the cool-house. The strong roots which the plants develop at this season must be taken great care of, their loss having a very injurious effect on the plants, more especially if there are flower-spikes.

THE FLOWER GARDEN.

By R. Davidson, Gardener to Earl Cadogan, Culford Hall, Bury St. Edmunds.

Miscellaneous.—The beds of Tea and Hybrid Tea Roses should now receive protection from frost by placing on the soil around the plants a thick mulching of stable-litter, bracken, or tree-leaves. The shoots, if well ripened, withstand a considerable degree of frost. Hybrid Perpetual and other Roses benefit likewise by being mulched, and Teas and Noisettes should have the main stems and chief branches protected by fastening branches of Laurel or Yew over them; and Roses grown on trellises with straw or hay-bands. Species and varieties of Clematis, Bamboos, Pampas-grass, New Zealand Flax, and other plants of a half-hardy nature, pass through the winter more safely if the shoots or stems be drawn fairly close together, fastened with soft string, and thatched with dry straw or bracken, with a dung mulch over the roots. Belladonna Lilies should be afforded a mulch of half-rotten tree-leaves over the crowns, as when the clumps have become strong, the finest bulbs are forced upwards, and these, if not protected, get killed by frost. The same kind of care should be taken with Alstrœmerias and many species of Lilies that are planted in beds and borders. All newly-planted herbaceous and alpine plants should have some light protective material placed over their crowns, such as partially rotten tree-leaves or finely-sifted coal-ashes. The flowers of Helleborus niger, the Christmas Rose, are much admired when the white of the flowers is pure and not

dashed by the rain, and this is easily prevented if there are spare hand-lights and *cloches* large enough to place over the clumps.

Box edgings.—Where the Box plant succeeds it is unsurpassed as an edging plant; but where the soil is very sandy or lacking in calcareous matter, it becomes of a rusty brown colour. The right course to pursue then is to lift and relay it in mild weather; and if a good quantity of chalk be incorporated with the staple, it usually brings about a more healthy appearance of the plants. If lifting and replanting be unnecessary, the existing gaps may be mended with plants of a suitable size taken from the reserve beds.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Vegetables for the Kitchen. — During frosty weather, see that an ample supply of all kinds of vegetables is placed in the vegetable-shed to meet every requirement; and opportunities should be taken of the warmer parts of the day to replenish the stock liberally. A vegetable-shed is a necessary adjunct to a garden, if the establishment is a large one, and it should be furnished with a large wooden bench, on which such vegetables as Brussels Sprouts, &c., and all kinds of salading, may be trimmed before taking them into the kitchen or pantry. In smaller gardens it is rarely that such accommodation is found, and a cellar or shed, even the potting-shed, has to do service for such a purpose. It is not advisable to gather any kind of vegetable whilst it is in a frozen state, apart from the greater comfort in securing them whilst they are otherwise.

Seakale.—A large number of Seakale roots should be dug up forthwith, and either potted up and then placed in the Potato or other shed, out of the reach of frost; or laid-in, in soil, in a similar place. Successional batches grown in pots plunged in bottom heat must be examined regularly, and when requiring water it should be afforded at a temperature of 80°. Where Seakale is obtained from permanent beds by means of fermenting material packed round Seakale forcing-pots, boxes, &c., a start should be made forthwith, mixing together a sufficiently large quantity of equal parts fresh stable litter, and leaves of Beech, Oak, or Maple. Then cover the crowns with pots, &c., and when the leaves and dung have acquired a heat of 80°, build up a bed firmly round and between the same, and carrying the bed about 6 inches higher than the tops of the pots.

Asparagus.—Make similar provision with regard to Asparagus, planting one or more frames whilst the weather is open, the sun now having so little power to assist the forcing, it is not likely to come on faster than will meet the demand. Cover thickly with long stable litter, as much more of the bed as may be required in the event of a long frost setting in. Where dressing of the beds and plantations with rotten dung, as I advised in a former calendar, has not yet been carried out, the first opportunity that occurs when the ground is dry or frozen, should be seized for doing so.

Ice-house.—As an urgent job for a wet day, see that all tools and appliances are put in good order for filling the ice-house, clearing out the straw still in the ice-well and the passages thereto, and leaving the door open till ice can be obtained of a thickness at least of 1½ inch. Ice of this thickness is more readily smashed and rendered compact than that which is thicker, and will keep better.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

Pinery. — Queen Pines, to ripen fruit next summer, should now be quite at rest: having received water in quantity early in November, no more will be required till the middle of next month; and for the next six weeks the temperature at night may be maintained at 50° to 55°, accordingly as the weather is cold or mild. The bottom-heat may not exceed 75°; air should be applied on fine, sunny days, when the sun has raised the warmth to 65°.

Smooth Cayenne, Black Jamaica, and other Winter Fruiters, with developing and ripening fruits, should be examined once a week as to the state of the soil, affording tepid liquid-manure to plants carrying growing fruits, and clean water to those just beginning to show colour, keeping such plants rather dry than moist. The night temperature should be 60° to 65°, according to the state of the weather, 10° higher in the day, with bottom-heat of 85°. Do not syringe the plants at this season, but damp paths once or twice a day.

Successional Smooth Cayenne.—Plants to give fruit next spring should be examined once a week, applying water when needed, as it is not good practice to let the soil get very dry. A mean temperature of 60°, and a bottom-heat of 80° or 85°, should be maintained.

The Orchard-house.—The leaves having now fallen from all the trees, loosen them from the trellises, &c., and cleanse them; also lime-wash, paint the walls, or syringe the latter with a strong mixture of paraffin and soapsuds. If the trees are infested with scale-insects, apply tobacco-water, or other strong insecticide, with a small stiff brush; and if infested with mealy-bug, use methylated spirits with a brush on the affected parts. Trees which made too much growth should be lifted, and the strong, bare roots removed entirely, and spread the remainder at varying depths near to the surface, affording fresh turfy loam in which to root. Aged or weakly trees should have the surface soil replaced with fresh soil, bone-meal, and an artificial fertiliser. If the fruit-tree borders consist of light soil, afford a thorough application of water and cow-shed drainings, and in no case allow the soil of the inside borders to get dry in the winter months. This kind of work is better done at this season than at the busier time later on.

Nectarine, Peach, and other fruit-trees of which the forcing was begun in November, will now have swelling buds, and on bright days the trees may be lightly syringed morning and early in the afternoon, damping paths and walls. Avoid the use of much fire-heat, even when the nights are cold, and maintain a mean temperature of 50° to 55° in mild, and 45° to 50° in severe weather. When the flower-buds expand, contrive to admit air in very small quantities constantly near the top of the house, putting canvas over the openings, and maintain enough heat in the pipes as will afford a temperature at night of 55°. The inside borders having been afforded sufficient water when the house was closed, will not require any more till the fruit sets.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Genistas.—This plant in its several varieties should be grown in a cool-house during the winter, and if early bloom is desired, a temperature not much exceeding 50° at night may be afforded to some of the plants, anything higher than this causing the flowers to drop quickly after expanding, or in the bud stage. Apply water when really required, and occasionally weak manure-water. Under this kind of treatment the earliest may be brought into bloom in the month of February without harm being done them.

Streptocarpus.—The large single leaf of S. Wendlandi forms an object of interest, and for this reason the tip should be preserved from injury by contact with hard substances, or by starvation in small flower-pots. The plant may be repotted at any time during the winter, but it should always be performed before the plants have got pot-bound. The potting soil should be rich in humus, and be very sandy. Seedlings raised this year may be repotted if this be necessary, and kept growing, but older plants should now be at rest in a pit or house the warmth of which does not fall below 45°, and be kept almost dry throughout the winter months.

Bulbs.—Dutch bulbs of all kinds, excepting Hyacinths not sufficiently well rooted, may be put into the forcing-house, and as Chrysanthemums will soon be over for the season, greater dependence will be placed on bulbs to keep the conservatory and greenhouse gay.

Begonia Gloire de Lorraine. — Propagate this plant by means of the leaves, some of the best of which may be removed with a sharp knife, close down to the base of the shoots, the basal parts of the leaf-stems forming the foundation of the new plant. These leaves may be conveniently struck in shallow boxes, filled either with clean sharp sand, light sandy soil, or cocoa-nut fibre, of which the latter is the most successful medium. The cuttings must not be crowded.

Climbers. — Stove and greenhouse climbers should be freed from superfluous shoots, and Heliotropes, Plumbagos, and a few others, which flower well when spurred back, may be cut in to the main stems and branches. Roses should have all growths too weak to produce flowers removed, and the strong shoots shortened. Tacsonias, Jasmins, Clematis, &c., should be well thinned, and if necessary, taken from the trellises and cleansed. Tecoma jasminoides, a climber too little grown nowadays, may be lightly pruned; Clerodendron Balfourianum cut over lightly, and the other stove climbers which are resting kept fairly dry at the root, but seeing that fire-heat is more in use than at other seasons; any plants planted in borders near the hot-water pipes should be examined often, applying water if the soil is getting unhealthily dry.

THE APIARY.

By EXPERT.

Removing Bees by Road and Rail.—The best time for removing bees is in the winter, and the more severe the frost the better it can be done. In removing skeps, the entrance should be blocked up by placing a little bit of perforated zinc over the entrance, and nailing it on with some broad-headed tacks or felt-nails. If the board on which the skep rests is loose, nail down the skep to it with several wire nails, and place a cord over the side and front, allowing sufficient rope in length to form a handle at the top. The skep can be removed by road or rail very comfortably, and if by rail, attach a label in large letters "Live Bees." If the skeps only are to be taken and not the boards, a little extra care will have to be given; the skeps will have to be loosened quite free from the board the night previous to removal. The skep can then be moved gently on to a butter-cloth laid out flat, and the four corners drawn over and tied at the top; also a stout piece of string must be tied round the mouth, and reach up to and be tied to the knot of cloth at the top for extra precaution. You can then remove it, and turn it either up or down, but in frosty weather it will be best with the mouth downwards. The tops of the skeps should be carefully examined, to see that they are secure, as many are made or cut out after for supers, and they should be firmly nailed down. In all these manipulations, be careful not to disturb the bees more than can be avoided. In many cases the skeps will be found to be perfectly rotten; these should be moved with the board, but where this is not possible, cover the whole skep with a thick cloth, and tie at the bottom and top securely. Some people keep bees in lard buckets; these can be removed by adopting the same plan as for skeps. In all cases where bees are removed in skeps with the boards, when you lift it up see that there are no holes in the boards for the bees to crawl through. This is often the case, as the boards used are generally old ones, and picked up in a hurry and cannot be examined, and this will cause a good deal of mischief. In removing skeps with supers on, if they are firmly fastened down, do not disturb them before you get them to the place you want them. All skeps should be placed at least a foot from the ground to keep them away from the damp; and the grass in front should always be kept short, so that tired bees have a chance of crawling into the skep, which they cannot do if the front is all blocked up with weeds.

PRESENTATION BY THE GERMAN EMPEROR TO A GARDENER.—On the occasion of H.I.M. The German Emperor leaving Lowther at the termination of his recent visit, he presented Mr. Clarke, the head gardener, with a handsome gold pin, studded with emeralds, pearls, and diamonds, as a souvenir of His Majesty's visit.

EDITORIAL NOTICE.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

SALES FOR THE WEEK.

DAILY (except SATURDAY)—
Dutch Bulbs, &c., by Pollexfen & Co., Pilgrim Street, Ludgate Hill.

MONDAY, DECEMBER 15—
Bulbs, Lilies, &c., at Stevens' Rooms, Covent Garden, W.C., at 12.30.

TUESDAY, DECEMBER 16—
Nursery Stock, at the Home Nurseries, Windlesham, Bagshot (Fromow & Son), by Protheroe & Morris, at 12.—112, Edgware Road, with Good-will of Business, and the Nurseries, Oxford Road, South Gunnersbury, at the Mart, Tokenhouse Yard, by Protheroe & Morris, at 2 P.M.—Lilies of the Valley, by Pollexfen & Co.—Freehold Nursery, Thoresthorp, near Alford, by Mr. Benj. Simons, at the Windmill Hotel, at 7 30 P.M.

WEDNESDAY, DECEMBER 17—
Palms, Azaleas, &c., from Ghent, at Stevens' Rooms, at 2.30.—Clearance Sale, at Astage Hill Nurseries, Windlesham, by Protheroe & Morris, at noon.—Bulbs, Azaleas, and Palms, at 67 & 68 Cheapside, by Protheroe & Morris, at 11; Lilies at 5.

THURSDAY, DECEMBER 18—
Lilies of the Valley, by Pollexfen & Co., Pilgrim Street, Ludgate Hill, at 12 30.—Nursery Stock, at Fromow's South Farm Nurseries, by Protheroe & Morris, at 12.

FRIDAY, DECEMBER 19—
Orchids, at 67 and 68, Cheapside, by Protheroe & Morris, at 12.30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —40 2'.

ACTUAL TEMPERATURES:—

LONDON.—*December* 10 (6 P.M.): **Max.** 40°; **Min.** 30°.
December 11 (9 A.M.).—Temp. 33°: dull.

PROVINCES.—*December* 10 (6 P.M.): **Max.** 41°, S.W. Ireland; **Min.** 35°, S.E. England.

Dutch Methods.

A MOST interesting report on the Dutch Brined Vegetable Industry has been published by the Board of Agriculture. It is the work of R. F. CRAWFORD, who visited various parts of Holland in order to study the methods of cultivation, pickling, and marketing of Onions, Gherkins, Cauliflowers, and other garden-productions. The growers about Biggleswade allege that they suffer from the competition of their Dutch and Belgian neighbours, and it was suggested that the Dutch producers enjoyed exceptional advantages in the way of cheap labour, low freights, and Government subsidies. Mr. CRAWFORD, accompanied by Mr. HERBERT KING, visited various market-garden establishments, factories, and horticultural schools in different parts of Holland, and gives the results in the publication before us. An adult labourer, it appears, earns from 2*s.* 6*d.* to 3*s.* 4*d.* per day, without food or other perquisites; but usually the work is done in a garden by the owner or tenant and the various members of his family, even children of eleven years of age being employed. The Onion-growers are described as a sober, hard-working class, with few wants beyond the bare necessaries of life. They remain, as a rule, very poor, and their food consists for the most part of milk, bread, and Potatos. They usually fatten a pig, and grow sufficient Potatos and other vegetables to meet their own requirements. Great care is exercised in selecting and grading the Onions. On the whole, it is pointed out that the cost of labour is not much less in Holland than it is here, but the Dutch grower employs little outside labour, and is content to work on his holding for a return which in some seasons is not equivalent to the wages of ordinary labourers The outgoings for rent are higher per acre than in Bedfordshire, and the grower has little advantage in the cost of manure. It is clear that the net profits realised in Holland by the cultivator of silver-skin Onions would be quite inadequate to satisfy the social requirements of agriculturists and market-gardeners in this country. The Dutch Onions are not in any way superior to those produced here, one secret of successful competition residing in the circumstances that the Dutch Onions present a better appearance, and better meet the requirements of the pickling firms, because more effective methods and greater care are employed in their preparation.

The Dutch organisation enables consignments to be sent to this country possessing greater uniformity of size, shape, and colour, than is attained at Biggleswade, and consequently the Dutch Onions fetch a better price in the market. The same statements apply in the main in the case of Gherkins. Cauliflowers are largely grown in North Holland by growers who are occupiers of the land they cultivate, and their standard of living is higher than in the case of the small growers in South Holland. The cost of market-garden land in North Holland mounts up to £100 or even £130 per acre.

As to the question of State subsidies to the shipping lines, it is shown by the commissioners that no such subsidies exist, though rebates are given in the case of large consignments by most of the shipping lines.

A point in which the Dutch have an advantage over us, is in the more general application of the co-operative principle to market-garden industry. All over North Holland the small market-gardeners have formed Societies for the sale of their joint produce, and in some districts they have erected their own auction marts. One of the largest of these associations is that known as the Westland, of the operations of which full details are given. The effect is to maintain the quality of the produce at a high level, and to eliminate the middle man as far as possible. The Society thus promotes the sale of market-garden produce by supervising the quality, quantity, and packing of the produce, by holding auction sales, by exporting goods of first-rate quality to foreign markets, by improving the systems of cultivation, and by taking any steps which will further the disposal of the crops. The Society has a registered trade mark which each member is allowed to affix to the produce he brings to the auction, provided that the goods have been previously passed by the committee whose duty it is to see that they are properly packed, that the contents of the packages agree with the weights stated on the labels, and that the articles are sound and of good quality throughout. The auctioneer receives nothing for his services, as the post is considered one of honour, a fact which calls to mind a frequent saying of the late Prof. REICHENBACH, who used to say "I cannot eat the honour." To meet the necessary expenses, 1 or 2 per cent. commission on the produce of the sales is deducted, and each member pays an annual subscription of 1*s.* 8*d.* The sum realised is divided at the end of each week among the contributors according to the quantity of produce they have sent. In 1901 the sum distributed to members of the Westland Society amounted to £44,250.

Another most important feature is the establishment of trial grounds for experimental purposes. These trial grounds are managed by a committee of market gardeners, but subsidised by the State and the local authorities, and inspected regularly by the directors of the State schools of horticulture. A "Black-list" is, in the case of one such society, placed in a conspicuous position, and in this list are inscribed by the President the names of those members who endeavour to pass inferior produce, or who are in default of their payments to the Society.

It is claimed for this system of co-operation "that it has largely reduced the commission and charges formerly paid to middlemen, that it has served to keep up the standard of quality of Dutch produce, and that it has prevented the under-cutting of prices which arises when individual producers compete against each other in the same market. Goods sold under the registered trade marks have an established reputation on home and foreign markets, and the enforcement of a high standard of quality by the marking committees has made it difficult for an individual to spoil the market for his fellow gardeners by 'topping up' inferior produce or by giving short weight."

The report ends with an account of the Dutch State schools of horticulture, of which that at Wageningen is the principal, and wherein the students receive three years instruction in all branches of horticulture and market gardening. There are also four "Winter Schools," in which the course of instruction is arranged to suit, as far as possible, the requirements of the district in which the school is placed. Thus at Boskoop, attention is specially given to floriculture and nursery work; at Tiel, fruit culture is the chief subject, but in all of them, the general principles of market-garden management are taught. The object is to enable those who intend to take up gardening as a livelihood to obtain the necessary theoretical knowledge at the lowest possible expense. The schools are managed by local committees, who report on the progress made to the ministry and government inspectors. Candidates for admission must pass an entrance examination in Dutch, arithmetic and the elements of the German and English languages. They must also possess some practical knowledge of market-garden work. The complete course consists of two winter sessions of six months duration, the school fees amounting only to one pound thirteen shillings and four pence for the entire course, but the students have to provide for their own board and lodging under the supervision of the Director. Arrangements are made for the Director to visit and keep in touch with the students during the summer months, so that their time may be properly employed with a view to their future occupations.

At Boskoop, the buildings and land for the school were provided by the local authorities, and the school receives a Government grant of £234 for the payment of lecturers. In the main building there are five class-rooms and a residence for the Director. The garden is 2 acres in extent,

The Flower Garden at Aldermaston: photograph by F. Mason Good.

with seven glasshouses and one hundred frames, and is managed by a co-operative gardeners' society, which receives a grant of £125 from the State, and £80 from the local authority. The produce is sold, so that the total revenue amounts from £265 to £285. The students have also the opportunity of working in the market gardens of the district, which occupy about 1,000 acres.

Some ten hours per week are taken up with lectures, half on practical, half on theoretical subjects; the larger part of the curriculum being devoted to practical work in the garden. The subjects taught include the cultivation of vegetables, fruit, trees, and flowers, chemistry, manuring, physics, botany, nomenclature, zoology so far as it relates to gardening, the diseases of plants, drawing, business correspondence, arithmetic, book-keeping, commercial geography, co-operation in the sale and purchase of produce, so that a comprehensive training is afforded in those commercial technicalities which are necessary to make the students good men of business as well as market gardeners.

The appendix to this very interesting report, of which we have necessarily given a very condensed account, contains the rules of the co-operative society known as Westlands, the regulations for the market at Grootebrock, and the complete syllabus of the lectures given at the winter school at Boskoop.

The Board of Agriculture has done well in publishing this report, and has, we hope, taken means to ensure a large circulation for it among gardeners and farmers. In the meantime, we may say that it is printed for H.M. Stationery Office by DARLING & SON, Bacon Street, London, E.

*** **OUR ALMANAC.**—According to our usual practice, we shall shortly issue a *Gardeners' Chronicle* Almanac for the year 1903. *In order to make it as useful as possible for reference, we shall be obliged if Secretaries of Horticultural, Botanical, and allied Societies, or any of our correspondents, will send us* IMMEDIATE INTIMATION *of all fixtures for the coming year.*

"INDEX KEWENSIS."—We are glad to be able to announce the publication of the second part of the Supplement of this monumental work, which includes the botanical names of plants published between 1886 and 1895 inclusive. The present part, compiled, like its predecessor, by M. DURAND, of the Brussels Botanic Garden, and Mr. B. DAYDON JACKSON, extends from p. 121 to p. 224, and from Cymbidium to Iriha. We notice that many garden names and hybrids are now included, for which horticulturists will be duly grateful. More than twenty-two columns quarto are devoted to Hieracium alone—and this in a Supplement!

LINNEAN SOCIETY.—On the occasion of the evening meeting to be held on Thursday, Dec. 18, 1902, at 8 P.M., the following papers will be read:—1, Notes on Copepoda, from the Faroe Channel, by Mr. THOS. SCOTT, F.L.S., &c. 2, Amphipoda of the "Southern Cross," Antarctic Expedition, by Mr. ALFRED A. WALKER, F.L.S., &c. 3, The Deep-Sea Isopod, *Anurus branchiatus*, Bedd., by Dr. H. J. HANSEN, F.M.L.S., &c.

"ILLUSTRATIONS DE LA FLORE DU CONGO."—The eighth fascicle of this important work, by M. E. DE WILDEMAN et TH. DURAND, has just been published. It contains quarto plates and illustrations of plants as follows:—Randia Eetvaldiana, sp. n.; Loranthus Lujall, Cistanthera Dewevrei, Brachystegia nepalensis, Loranthus nigrescens, Dichapetalum Lolo, Viscum Gilletii, Lonchocarpus comosus, Acioa Dewevrei, Viscum lenticellatum, Triumfetta Hensii, Striga Dewevrei. Some of the descriptions are from the pen of the late MARC MICHELI.

THE HORTICULTURAL CLUB.—The usual monthly dinner was held on the 9th inst. at the Hotel Windsor, under the chairmanship of Mr. HARRY VEITCH; subsequently a paper was read by Mr. HERBERT MOLYNEUX on the subject of "Roses near Large Towns." Amateurs purchase, on the score of cheapness, plants which have stood the ordeal of prolonged root-exposure, incidental to sales by auction, and then leave the planting to the jobbing gardener. Eventually the Roses are left severely to themselves, no pains being devoted to keep them in a clean and healthy condition. Given proper care, Mr. MOLYNEUX had found that it was perfectly practicable to obtain an abundance of fine flowers on healthy, robust plants. Roses have their individual likes and dislikes, in respect both of pruning and of locality, and these could only be gathered by a study of good authoritative books.

THE TRANSVAAL.—"A Handbook for Settlers" has been issued by the Department of Agriculture at Pretoria, and should be studied by all who think of taking their chance in the Transvaal. In clear, concise language a description of the country, its climate, and productions is given, together with useful hints to beginners, and information relating to crops, cattle, pigs, poultry, and the diseases of man and animals. A glossary of South African words and an index, complete what appears to be a very trustworthy and easily-read handbook. It is issued under Government auspices, and any further information required may be obtained from the Director of Agriculture, Pretoria.

"FLORA OF TROPICAL AFRICA."—We are delighted to note the progress of this important work, so long delayed, but now happily in process of publication at no long intervals. The present part contains the conclusion of the Apocynaceæ, by Dr. STAPF; and the commencement of the difficult order Asclepiadaceæ, by Mr. N. E. BROWN.

"MINERVA."—The second title of this volume is *Jahrbuch der Gelehrten Welt*—an annual of the world of learning. It is a very full list of the universities, technical schools, libraries, museums, learned societies, and similar educational bodies throughout the civilised world. The arrangement is alphabetical, and there is a similar alphabetical list of Professors and others connected with the establishments in question. It is much the most complete book of its kind that we have come across; it is edited by Dr. K. TRÜBNER, of Strassburg, and may be had from WILLIAMS & NORGATE, Henrietta Street, Covent Garden.

A WILD HYBRID SENECIO.—In the *Journal of Botany* for the present month, Messrs. BURBIDGE & COLGAN describe and figure a hybrid between S. Jacobæa and S. Cineraria, which they name × Senecio albescens. It was discovered at Dalkey where, some years since, Sir FRANCIS BRADY sowed seeds of Cineraria maritima, alias Senecio Cineraria. This has established itself on the rocky cliffs of Killiney Bay, Co. Dublin, and has now further shown its powers of adaptation by inter-breeding with the common Ragwort.

"BOTANICAL MAGAZINE."—The plants figured in the December number are the following:—

Iris Gatesii, Foster, tab. 7867.—*Gard. Chron.*, 1890, ii. 18, f. 3; *Garden*, 1893, p. 132. The largest of all the Irises.

Aristotelia racemosa, Hook. f., t. 7868.—A Tiliaceous shrub from New Zealand, with ovate serrate leaves, and long loose clusters of small flowers, with rose-coloured and notched petals. Flowered in the open air in the Isle of Wight.

Cirropetalum Hookeri, Duthie, t. 7869.—A small species, growing epiphytically on Rhododendron arboreum. The small ovoid pseudo-bulbs bear each a single oblong leaf, and from the base proceeds a wiry peduncle, bearing a one-sided umbel of yellow flowers, with the construction peculiar to the genus. It is a native of the Western Himalaya.

Crowea angustifolia, Turczaninow, t. 7870.—It is a native of West Australia, and forms a glabrous shrub, with sessile linear leaves and star-shaped, rose-pink flowers, about 1 in. across, with five spreading petals. A pretty greenhouse plant of the Rue family.

Kalanchoe Kirkii, N. E. Brown, in *Gard. Chron.*, 1902, ii., p. 110; and here figured at t. 7871.

"BROTERIA."—Under this title we have received the first part of a Portuguese journal of natural history. It contains a sketch of the life of BROTERO in Latin, various papers on gall-insects, the construction of the microscope, Portuguese fungi and butterflies, and lastly a list of Portuguese naturalists, with an indication of their respective residences.

THE ARBORETUM AT OTTAWA.—We have received a very interesting report of the Arboretum established at Ottawa in 1889, and now comprising a vast number of representative trees, shrubs, and herbaceous perennials got together by Dr. JAMES FLETCHER, and since 1895 by Mr. W. T. MACOUN. Each year notes are taken as to the peculiarities of growth of certain subjects, and their adaptability to particular localities. Of Cercis canadensis it is recorded that the first winter after planting it was killed to the ground, and only made weak growth the following year. The next winter the shoots were killed back for two-thirds their length, in the following winter for half, the fourth winter it was hardy almost to the tips, and so continues; and a similar remark is made with reference to Nyssa sylvatica. Other specimens of the same species were killed outright. Trees of the same species procured from the North are harder than those obtained from the South.

FOOD OF PLANTS.—M. LAURENT in a recent number of the *Comptes Rendus* shows that glucose, saccharose, and other sugars, as well as glycerine, supply excellent food for plants, and that humic acid in the form of humate of potassium modifies those interchanges of gases which lead to the assimilation of carbon in the plants. On reading this, one wonders whether refuse sugar-canes, from which all the sugar cannot be extracted, would be serviceable as manures.

DOLICHOS JAPONICUS.—In *Meehans' Monthly* for November is a description of the Dolichos japonicus, or Pueraria Thunbergiana, sometimes called the Kadzu Vine. We read that:—"The flowers are pea-shaped, rose-coloured, in axillary spikes 6 inches or more in length, and are beautiful, in the writer's opinion, and they have a very pleasant odour. For covering a large space quickly—be it an upright or a trailing one—there is no Vine its equal. Young plants die back to the ground in winter, but strong ones do not do so entirely, only the younger growth dies; but how far its tops die back depends on the severity of the winter. In its native country, a starch used as food by the Chinese and Japanese is obtained from its roots, and a fibre of much value from its wood. The roots are large and fleshy, and on old Vines are reputed to be of enormous length, and of curious shape."

M. DEHÉRAIN.—We greatly regret to see the announcement in the *Times*, of the death of this distinguished physiologist and chemist. M. DEHÉRAIN was the professor of vegetable physiology at the Paris Museum, and was a distinguished

member of the Academy of Science, being the friend of Decaisne, Duchartre, Bornet, Van Tieghem, and other eminent botanists. M. DEHERAIN was the author of a standard work on Agricultural Chemistry, the last edition of which was reviewed in our columns lately, and was the Editor of the *Annales Agronomiques*, and an occasional correspondent of this journal.

DR. PRIOR.—We regret to have to announce the death on the 5th inst., at York Terrace, Regent's Park, of Dr. R. C. ALEXANDER PRIOR, in his ninety-fourth year. Dr. ALEXANDER, as he was originally called, collected in South Africa and the West Indies, and was for many years an assiduous attendant at the meetings of the Linnean Society. He is best known by his useful book on the popular names of British plants. He was also conversant with Scandinavian literature. He was an occasional correspondent of the *Gardeners' Chronicle*, and beloved by all who knew him for his kindliness and courtesy. We hope next week to be able to publish a fuller account of his life.

EDUCATION IN THE NETHERLANDS. — There has just been issued, through the KING'S printers (EYRE & SPOTTISWOODE, West Harding St., E.C., price 5*d.*), what may be termed a supplementary report on the system of education established in the Netherlands, the result of enquiries by a commissioner sent over for the purpose of gathering up facts, possibly for use by the House of Commons in its struggles over the Education Bill, now on the legislative "stocks," and where it is likely to remain some time longer ere being launched into history as a full fledged Act of Parliament. We can only hope that our legislators may find the little book of use to them, as it surely will be of interest, seeing that we are being assured that we are ever so much behind everybody else in the matter of education. Our Dutch friends are very earnest educators, and those who are being educated must also be very earnest in the subjects to pass in which is necessary to matriculation. Amongst other things being three languages (modern), mathematics, chemistry, theoretical and practical mechanics, and goodness knows how many more. In all "centres" these are subjects common to all; in some, selections are made: agriculture is well cared for; and botany, it may be said, of course, runs side by side; nor is forestry forgotten. We are under the impression that the sons of farmers do not sufficiently estimate the advantages of the education provided for them by State and Commune. Evening classes are felt to be a boon by very many, and compulsory attendance at day school has resulted in nearly all juniors finding their way to the class-room. The little book is well worth perusal by all who take an interest in the proper education of the rising generation.

MR. GUILFOYLE. — The *Melbourne Garden Gazette* for October has a portrait and a sympathetic notice of Mr. GUILFOYLE, the energetic and highly capable Director of the Botanic Gardens. Mention is also made of the Museum of Economic Botany, established by him in the gardens.

ROSES.—A new edition of the official *Catalogue of Roses* has been issued, and may be had from the Hon. Secretary of the National Rose Society, EDWARD MAWLEY, Esq., Berkhamsted, Herts. It contains, as examples of various sections, illustrations of Gustave Piganneau, H.P.; Mrs. W. J. Grant, H.T.; Maman Cochet, T.; The Garland, Summer Rose, and of a bush of Rosa multiflora. The descriptive list has been revised with great care, and brought up to date, e.g., no fewer than eight of the Wichuriana section are introduced, and selections of choice Roses for different purposes are added, which will be a boon to novices.

HORTICULTURAL HALLS.—If we may judge from the numerous representations given in American gardening periodicals, the interiors, as at Philadelphia, Boston, Chicago, New York, are rather gloomy and prison-like, and the light not all that could be desired for exhibitions of flowers. Doubtless there are good reasons for this, but the fact is worth noting.

STOCK-TAKING: NOVEMBER.—The Board of Trade Returns for the past month record a falling off in the values of imports, and a continuation in the upward progress of exports. The value of the imports is £45,118,056, against £46,810,553 for the same period last year, or a decrease of £1,692,497. This is principally due to a decrease in the values of raw materials for both manufactured articles, of food and drink dutiable, metals, oils, and parcel post. Our usual excerpt from the summary-table is as follows:—

IMPORTS.	1901.	1902.	Difference.
	£	£	£
Total value ...	46,810,553	45,118,056	−1,692,497
(A.) Articles of food and drink—duty free	8,128,925	8,358,688	+229,763
(B.) Articles of food & drink—dutiable	10,219,898	9,537,464	−682,434
Raw materials for textile manufactures	9,649,379	8,203,335	−1,446,044
Raw materials for sundry industries and manufactures	4,173,624	4,377,651	+204,027
(A.) Miscellaneous articles	1,615,433	1,628,895	+13,462
(B.) Parcel Post ...	105,248	91,339	−13,909

A note, by the way, as to wood and timber. The total imports for the past month were £1,772,673 against £1,512,665, or an increase of £260,008. With regard to the imports of fruit, it may be of use to note that it is always best to delay prophesying until one knows. It was said that, as last month's list of imports showed but one minus entry, the minus sign was becoming "as the Dodo." Now as to the imports of fruit:—

IMPORTS.	1901.	1902.	Difference.
Fruits, raw:—	Cwt.	Cwt.	Cwt.
Apples	324,567	606,156	+281,589
Apricots and Peaches	38	.....	−38
Bananas... bunches	224,835	250,410	+25,575
Grapes	106,348	68,241	−38,107
Lemons	58,349	86,587	+28,238
Nuts—Almonds ...	23,009	29,107	+6,098
Others, used as food	205,801	124,937	−80,864
Oranges...	552,0.9	386,046	−166,023
Pears	25,178	24,177	−1,001
Plums	334	1,527	+1,193
Unenumerated, raw...	12,805	9,996	−3,809
Fruits, dried—			
Currants, for home consumption ...	220,282	156,210	−64,072
Raisins ,, ...	160,861	148,810	−12,051
Vegetables, raw:—			
Onions ... ...bush.	637,954	712,599	+74,645
Potatos ... ... cwt.	203,205	419,661	+216,456
Tomatos... ... ,,	20,924	26,232	+5,308
Vegetables, raw, unenumerated ...value	£19,650	£21,739	+£2,089

The reader will have noted "minus," and hoped for a better record next month. The value of the general imports for the past eleven months is £480,762,264, as against £475,506,540 for the same period last year, or an increase of £5,255,724. Come we now, in conclusion, to the—

EXPORTS.

The value of these for November was £24,657,238, against £22,842,436, showing an increase of £1,814,802. The highest increase is found in raw materials, £411,258; miscellaneous articles, either manufactured or primarily so, £335,899; apparel, over a quarter of a million sterling; articles of food and drink, £239,058; and so forth. The value of the exports for the eleven months is £259,320,740, against £255,969,112 for the same period last year—or an increase of £3,351,628.

NATIONAL AURICULA AND PRIMULA SOCIETY.—The annual general meeting will be held in the Rooms of the Horticultural Club, Hotel Windsor, Victoria Street, on Saturday, Dec. 13, at 4 P.M.

NATIONAL CARNATION SOCIETY. — The annual general meeting will be held in the Rooms of the Horticultural Club, Hotel Windsor, Victoria Street, on Saturday, Dec. 13, at 5.30 P.M.

KEW.—One would not choose a day such as we have had lately to visit Kew, when it seemed a matter of uncertainty whether it would rain or snow, but on which it was quite certain that a keen north-east wind was blowing. Quite certain also was it that the visitor would have been repaid for his trouble, and but for the circumstance that the garden is closed on Christmas-day (the only day in the year!), we could suggest no more interesting way of passing the Christmas time for those of horticultural and botanical proclivities than a visit to Kew. There is so much to be seen indoors that the dull season outside need not be taken into consideration. The Aroid-house close to the entrance from Kew Green, the various Fern-houses within a few yards, are as full of interest as on a summer's day, and those quaint fascinating Cactuses and Agaves in the Succulent-house are as striking as at any other season. A few Aloes like A. arborescens, still remain in bloom, and the upper branches of the singular Euphorbia triangularis are laden with seed-vessels; E. xylophylloides will attract the attention of the botanist, who will want to know the why and wherefore of those curious flattened branches. The Japanese Kaki (Diospyros), seems somewhat out of place in this house, but its globular orange-red fruits give a dash of colour that is welcome amid the prevailing green. The greenhouse known as No. 4, is as usual full of flowers, much the same as those we noted on our last visit. Chrysanthemums form the bulk of the display, but as Chrysanthemums may be seen anywhere and everywhere, they do not appeal to us so much at Kew, where we expect to see novelties and rarities rather than commonplace things. But Kew has to cater for all classes—for some who have no opportunity of seeing these gorgeous autumn flowers anywhere else, and for many who have no eyes for mere novelties, and no interest in any but florists' flowers. In addition to the Chrysanthemums, the display is made of Primula obconica, Cyclamens, Roman Hyacinths, the blue Coleus thyrsoideus, a contrast to the scarlet Savia splendens; Begonias, Abutilons, Pelargoniums, Peristrophe speciosa, an Acanthad with deep lilac flowers, intermixed with the white and green foliage of Abutilon Savitzii. A big bush of Luculia gratissima fills the house with fragrance, and Pleroma drapes the roof in one place with its large bluish-purple flowers. We might fill a column with a catalogue of what is to be seen in No. 4, but as our object is only to induce others who have the chance to go and see for themselves, and to suggest that they need not be deterred by bad weather, we have said enough. But No. 4 by no means exhausts the interest; the Nepenthes-house is amply worth a visit. The plants have made good growth, and are well provided with handsome pitchers. On the whole, the very numerous hybrids surpass the species in richness of coloration. This house is particularly well worth a visit now. The Orchid-houses are gay with a display of Calanthes; a

few specimens of Lælia autumnalis and L. anceps are to be seen, and numerous Cypripediums. The beautiful Cynorchis purpurascens is still in flower Lycastes and a few Odontoglossums are to be seen, and quite enough to interest an Orchid-fancier for a half-day. But our space is more than filled. Our purpose will be served if we remind our readers that they will be sure to find something to interest them at Kew even in the Christmas holidays.

Edinburgh Seed Trade Assistants.—The eighth annual dinner of the Edinburgh Seed Trade Assistants' Association was held on Friday night, December 5, in Ferguson & Forrester's (Limited), Mr. Robert Laird presiding. Among those present were Councillor Martin, Mr. J. W. McHattie (the city gardener), Mr. James Whytock, Dalkeith Palace Gardens; Mr. R. L. Macdonald, Mr. T. D. Scott, Edinburgh; and Mr. J. H. Parker (Hon. Sec.). The croupiers were Mr. Alexander Chalmers, Mr. A. S. Denholm, Mr. Wm. Mackinnon, and Mr. James Stuart. The toasts of the "King" and "Imperial Forces" were proposed by the chairman, and cordially pledged. In proposing the toast of "The Seed Trade Assistants," Councillor Martin said the seed trade was a most important one, for no matter what industry was up or down, the cultivation of the soil would be the most important industry of any country. He understood their organisation had existed for some years, and the result was that the employers and assistants were able to meet on a common platform. There was, however, another side to their trade besides the social one. They ought to lose no opportunity of gaining a thorough knowledge of their trade, and with this object in view they should take advantage of the aid rendered by technical education. He had no doubt that this Association would succeed in advancing their trade, and that a great future lay before them. Mr. A. Chalmers replied. The other toasts which followed included "The Nursery and Seed Trade." A well-arranged vocal programme provided the entertainment of the evening.

ALDERMASTON COURT.

[Supplementary Illustration.]

Mrs. Hemans might well have written her charming lyric, "The Homes of England," after a visit to Aldermaston, so typical is the fair demesne of the stateliness and sweet simplicity which she voices. There is nothing circumscribed about its beauty. The village itself, the houses of its solitary street swathed in Ivy, speak of rest. The whole park and pleasure-grounds teem with wild life alike of birds and flowers, and herds of deer browse peacefully beneath the shades of the giant Oaks and Sweet Chestnuts which are such a feature among the arboreal treasures.

Situated about ten miles south-west of Reading, and not far from the borders of Hampshire and the departed glories of old Roman Silchester, it boasts a wealth of variety that is characteristic of but few estates. The manor of Aldermaston played its part in the stirring times of the seventeenth century. The Virgin Queen visited Sir Humphrey Forster there in 1601; and later, in the desolating Civil War, the mansion was occupied at various times by the generals of both armies. Many a romance might be written of the vicissitudes which befell the place as it passed from owner to owner—from the Forsters to the Congreves, and finally to the safe limbo of Chancery, after a disastrous fire, which destroyed much of the old mansion in January of 1843. Its then owner, William Congreve, Esq., survived the destruction of his house only for a few months.

In 1849 the estate was purchased out of Chancery by Mr. D. H. D. Burr, who built the present mansion upon a site some 200 yards removed from that of the old one. The architect was Mr. Philip C. Hardwick, R.A. Although the site of the new house is a great improvement upon the old one, it is perhaps to be regretted that no attempt was made to rebuild the old house, parts of which were still habitable. In Mr. Burr's hands the natural beauties of the park and grounds were developed apace. Keen naturalist and expert forester as he was, progress was made quite upon the right lines.

In 1893 the estate passed by sale into the possession of C. E. Keyser, Esq., the present owner and with his advent a new and prosperous era opened. The mansion has been much improved and added to, and with such rare skill that it seems as if the original idea of the architect, which for some reason or other was not put into practice, has at last been carried out; while no expense has been spared in connection with the estate generally.

The view of the Court, as given in the illustration which forms this week's Supplement, shows only the western side, with part of the flower-garden; but it does not give a correct idea of the size and architectural beauty of the structure. A great feature as shown, is the double row of clipped pyramidal Yews, and although topiary work has been much criticised of late years, not even the most ardent exponent of the "natural system" could, I think, find fault with their presence here. They harmonise with the outlines of the fine Elizabethan building, and with the series of Box-edged, geometrically-exact flower-beds which also appear in the picture. The paths between these flower-beds are of gravel, and the beds themselves are many of them filled with Roses, of which a large collection is grown. A long corridor conservatory, with iron framework, which lies at the north side of the garden is not seen in the photograph.

The kitchen and fruit gardens, with the greater part of the lawn, lie in a sheltered hollow about three-quarters of a mile from the mansion, and on the way to the village. Most of this glass is new, and all is in capital condition. A long range of Vineries, Peach-houses, and Fig-houses, is included, and the quality of Aldermaston Grapes is well known at the various shows round about The plant-houses are well appointed, and, in addition to the usual collections of flowering and foliage plants, a specialty is made of Chrysanthemums. The Challenge Cup offered at Reading for a group of Chrysanthemums found a final resting place at Aldermaston this year, after having been won three consecutive times. The whole park is one great garden. Wood and water are abundant, and the huge lake lying to the north-west of the mansion is one of the best examples of artificial water in the country. Glimpses of it are to be had from the terrace through the giant Elms grouped upon its banks Yet the crowning glory is the trees. Long avenues of Lime, Oak, and Chestnut, afford unmistakeable evidence of a bold and effective style of planting; while the great size and well-developed heads and trunks, speak of the suitability of soil and position.

The new carriage-drive, which was made by Mr. Keyser soon after he took possession, enables the visitors to gain some idea of these sylvan glories. It enters the park by the iron gates at the top of the village street, where still stands the falcon which was the crest of the Congreves, and winding its way by a rather steep gradient past the fine old church, passes the two grand Scots Firs which are the pride of all the trees, till finally it leads to the principal (east) front of the house.

The church, by-the-way, has been the object of Mr. Keyser's special solicitude. Roundhead vandalism led to the covering of much of a wonderful fresco with commonplace plaster, and now that the plaster has gone, and the frescoes restored and added to, the old church is herself once more. *A. S. G.*

Fig. 148.—Ferula glauca, as it grew in Chelsea Physic Garden. (See p. 442.)

FERULAS.

In very few gardens do we ever see plants of the Fennel family, except the one grown for mackerel. Yet there are few herbaceous plants more worth growing, especially for the beauty of the foliage. The genus Ferula now contains many which were formerly separated, as Ferulago and Narthex; and there are sixty or seventy species, of which thirteen are cultivated as hardy plants at Kew. They are for the most part natives of Southern and Eastern Europe, Central Asia, and North Africa; but there are many others, and not any are natives of England, though the common Fennel may be said to be naturalised in a few places. The best for garden purposes are F. glauca (shown in figs. 148, 149), F. g. candelabra, F. communis, well marked by its more divided leaves; F. tingitana; the last-named and F. g. candelabra both very stately plants; and among the low-growing species, I think F. sylvatica the best.

F. glauca was this year in my garden the finest and most striking plant I had. The flower-stems were covered with a rich glaucous bloom; they were 14 feet high, crowned with a large umbel of yellow flowers, which, when lighted up by the evening sun, made the whole plant resemble a collection of golden candelabra. Plenty of seed was formed and ripened, and I have still some to spare for brother-gardeners. Most of the species have a fine aromatic scent, except the Asafœtida (fig. 150) which is among the most evil-smelling of all plants—the evil smell being found in every portion of the plant, but fortunately only perceptible when the plant is bruised. The British Meum athamanticum is closely allied to the Fennels, and is worth growing. The flowers have no beauty, and I generally pick them off; but the delicate rich green foliage makes the plant a good one for the rockery. *H. N. E., Bitton.*

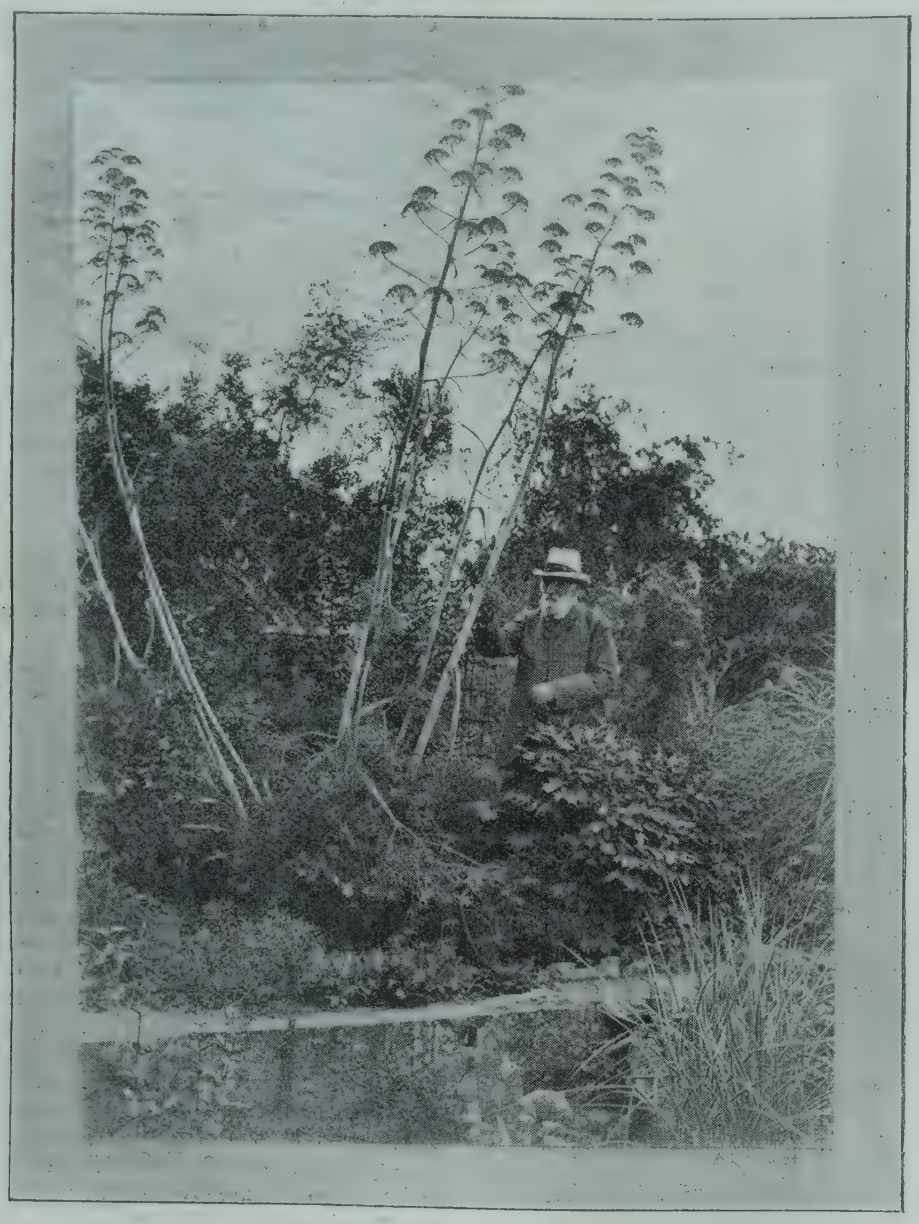

FIG. 149.—FERULA GLAUCA IN CANON ELLACOMBE'S GARDEN, BITTON.

CAMBRIDGE BOTANIC GARDEN.

GERBERA "BRILLIANT."—I have now in flower the finest Gerbera I have yet seen, and propose this name for it, suggested by its flame-like colour. It is a cross between G. Jamesoni and G. "Sir Michael;" the flower-head is 4 inches across, though the plant is growing in a 5-inch pot, the rays well placed in one plane, with practically no space between them, and of the most brilliant vermilion colour. The thinning, as it were, of the Jamesoni colour by the yellow of "Sir Michael," has produced an effective result, just as might be attained from a dark mass of colour by laying it thinly on paper. The foliage I think a decided improvement on G. Jamesoni, having some of the compactness and stiffness which, apart from colour, helps to mark G. Sir Michael. Several plants raised from the cross appear to be quite the same, and I am hoping, therefore, to fix a race which is sure to be valuable, whatever yet may be done with Gerbera. I have a promising white, and all shades of pink. *R. I. L.* [The publication of this note has been unfortunately delayed. ED.]

HOME CORRESPONDENCE.

THE CURRANT BUD-MITE. — The reply to "W. C.," p. 428, has, I feel sure, been written without sufficient experience. Fourteen years ago, when we came to our present garden, the Black Currant trees were thick with this pest; we picked them off, spending an hour or so at odd times, and got a large crop of good fruit. Thinking we could clear it out, we dug the trees out, burnt them, and got a new stock from a place where it had not appeared, planting them in new ground as far as possible from where the Currants had been before. In three years they were as bad as the old stock, and we kept on the system of hand-picking, the result being that every year we had enormous crops of fine fruit, the branches having to be supported to prevent breaking down with the weight. Our next neighbour tried the cutting down and burning, as recommended in the *Gardeners' Chronicle*, with the result of the total loss of crop for two years, and a small one for one or two years after; but the pest reappeared at once as soon as the plants began to bear. Practically three years' crops were totally lost without the slightest benefit, whilst we had and have very heavy crops every year except the last, when the flowers were destroyed by late and hard frosts. We have tried and seen tried for the last fourteen years everything which has been recommended, and all the experience goes to show that nothing more is needed than hand-picking at odd times. What we lose in numbers of bunches is gained in the size of the remainder; and the crops are, with the one exception mentioned, as heavy as the trees will or can carry with the help of props. We could not wish for better crops or finer fruit, and the present system is very little trouble. If anything, it is a distinct advantage, like the thinning of Grapes; what we lose in numbers we gain in size and quality of fruit. If your correspondent cuts his trees down, he will have two years for repentance, and find the new growth as badly infested as the old; whereas, if he will amuse himself at odd times with hand-picking, he will have as heavy crops as if the mite had never existed. *Thos. Fletcher, Grappenhall, Cheshire.* [We should be glad to hear if other growers have been as successful. ED.]

THE HORTICULTURAL HALL.—It is devoutly to be wished that all who are interested in the welfare of the Royal Horticultural Society will take to heart what you say in your leader of December 6. It is only right to do those who criticise the plans of the proposed hall the justice of saying that their interest in the welfare of the Society is deep and genuine. No plan or set of plans will please everyone, and the success of the scheme will only be imperilled by carping criticism. We may suppose that the Council are as anxious as any of us that the hall should be worthy of horticulture and of the Society, and we may trust that they will endeavour to give the Fellows a home which will do them credit, and fulfil all reasonable requirements. The great point is that the money should be forthcoming, and then we may be assured that the Council will see that some modifications in the elevation can be carried out. It is evident that the scheme requires the hearty support of the Fellows if it is to be such a success, that the cost of the hall should be nearly met by special subscriptions. We all know our own circumstances best, but if everyone will give their brick or two, and those who can afford it many bricks, we shall hope to see the Society housed in a building worthy of it. But we must not complain, but rather support the Council in erecting a building at a cost within the means of the Society. *A Northern Fellow.*

TREES GNAWED BY RABBITS.—I had occasion, about forty years ago, to make some ornamental plantations in a district in which rabbits, hares, and other game abounded. About ten years later I went through the plantations, carefully noting which species had been gnawed, and which left. The following list may be some guide to those engaged in planting. Those of which the bark had been gnawed were Holly, Laurel, Portugal Laurel, Thorns of all kinds, Privet, White Broom, Ivy, Beech, Hazel, Larch, Arbor-vitæ, Snowberry,

and Gorse. Those of which the bark was untouched were Oak, Sycamore, Walnut, Yew, Scotch Fir, Spruce, Box, Currant, Flowering Currant, Gooseberry, Rhododendron, Gueldres Rose, Lilac, Sweet Briar, Barberry, Plum, Apple, and Gum Cistus. *F. T. Mott, Birstal Hill, Leicester.*

RUST ON BROAD BEANS.—Noticing the paragraph in your issue of last week concerning rust on Spearmint, I may say that I have had some plants of Broad Beans affected by a rust of some kind, but not in the same degree. The few rows affected grew only a short distance from the rusted Spearmint. Whether this is the same species of fungus which affects Chrysanthemums, I am unable to say; but notwithstanding the fact that the cuttings and also soil were obtained from a fresh source, the few Chrysanthemums that I grew were more or less a failure the last two seasons from this cause, and if it spreads from Beans and Mint, I almost despair of keeping Chrysanthemums free of it here. *F. K., Ticehurst.*

THOMPSON'S GARDENER'S ASSISTANT. — In your notice of this work last week you complain that "we are not told that the last-named (Celeriac) must be cooked before it is eaten." Permit me to quote from that work (vol. ii., p. 434): Celeriac, the Turnip-rooted Celery . . . . the stem of which forms under favourable circumstances an irregular knob, and this is the part chiefly used, either sliced as an ingredient in salads, or cooked. It is not so delicate as the other kinds of Celery, yet it is much esteemed on the Continent." May I also ask if it is usual for works on gardening to state how vegetables are to be prepared for the table? Is not this rather a subject for cookery-books? *W. Watson, Dec.* 8, 1902.

DENDROMETER.—I can absolutely negative Mr. Richardson's suggestion that Mr. Sang was probably the first to apply the term "Dendrometer" to an instrument for the measurement of trees. An ancestor of mine, Mr. Duncombe, who died before 1840, the year mentioned, was always described as "the inventor of the dendrometer." *D.*

IRISH HARDY FRUIT.—What your correspondent has written in praise of the superb quality of the Apples and Pears shown at Belfast just recently has been amply borne out by the statement made to me the other day by Mr. J. Austin, the jam manufacturer of Kingston, who went over to the fruit show at Cork earlier in the year, and who reported that the samples of Apples and Pears seen there far excelled in size, colour, and finish, what was seen just previously at the Crystal Palace. That being so, it is greatly to be deplored that our Irish friends do not send over here good examples of their produce. Let them bear in mind the autumn fruit show of the Royal Horticultural Society will next year be at Chiswick; and also see that they are not responsible for the absence of Ireland from that gathering. Why should not Ireland, as well as Canada, become a great fruit-growing country? *A. Dean.*

SECTIONAL BOILER.—I have read with interest the article in the *Gard. Chron.*, October 18, p. 286, "Boilers, Stoking, &c.," by Mr. Louis Pearson. Let me ask any gardener or others contemplating a renewal of heating apparatus to inquire for and inspect a sectional boiler, the name and maker of which would be given on application. The ease with which it is fixed, stoked, regulated, and the economical use of fuel (slack one part, coke three parts), and the rapid manner in which it "heats" up, to use a garden term, is a surprise to many who have employed saddle, upright, tubular, Trentham, and other boilers. The writer watched one carefully last winter and spring (from January 4), doing the work formerly done by three old-fashioned saddle-boilers in a range of seven fruit-houses. I should say that the boiler which had been put in to heat considerably over 1000 feet of 4-inch pipes, or what was equivalent to that quantity, consumed in six months about 11 tons 4 cwt. of coke, and some refuse small coal and cinders from the mansion. All will recollect what the garden fuel bill was in the early part of this year, which will enable the reader to form a comparison favourable to the sectional boiler. *J. G. W.*

APPLE ALFRISTON. — I am sending you a sample of this Apple, grown in a Surrey garden, where the variety was the best cropper this year; the fruits are of good size, and clean in the skin. They are, however, just touched with the marks of the net used when fruits were young. Alfriston is one of the best keeping Apples; in fact, the sender informed me that the last fruits from off the trees of 1901 were cooked on the deferred Coronation day in June last. I have also another sample from a Middlesex cultivator which are of a better colour. A fruit of first quality as a culinary variety, a moderate bearer, but usually bearing full crops; a good market variety, worthy of extensive planting. *S. C.* [A good sample of a good Apple. Ed.]

Fig. 150.—Ferula asafœtida. (see p. 442.)

JUDGES AT THE NATIONAL CHRYSANTHEMUM SOCIETY'S SHOWS.—It is very easy for "A Country Member" to throw bricks at the executive while he shields himself behind the wall. Why not come out in the open? for, in my humble opinion, greater reforms can be more rapidly and effectively adjusted when a person has the courage to append his name. It is possible then that he would be recognised as a member of the Society who failed to persuade the committee to elect all his pet "country" nominees at the last election of judges. How does the selection of the National Chrysanthemum Society's judges materially differ from the election of the National Rose Society's judges, or other special societies, or even the judges appointed at some of the Royal Horticultural Society's gatherings? The National Chrysanthemum Society has done useful work in the past, and I trust it will retain the sympathy and support of horticulturists in carrying on that work in the future. To try and encourage more persons of higher social standing and business training to take an active part in its debates and management, to try and crush any petty-fogging intrigues and jealousies that arise, and to insist that all votes and resolutions legally carried by a majority be implicitly obeyed with faithfulness and integrity, should be the aim of all persons taking a part in its management, or who are interested in its future welfare. *J. W. Moorman, Victoria Park, E., Dec.* 6, 1902.

—— Having just read the paragraph of "A Country Member," respecting the judges at the National Chrysanthemum Society's shows, in the *Gardeners' Chronicle* (December 6, p. 423), the leading horticultural journal of the United Kingdom, and finding it to be an attack on the Executive Committee, I feel bound to offer a word or two of comment. Perhaps it is unfortunate that the officers are *ex officio* members on the various committees, but it is not a solitary case, as many other societies adopt the same rule; and the various sub-committees, and also judges, are nominated and elected from the main body of the society, whether it be a council of the members or an executive committee. Take

for instance, the provincial societies, who carry out with such success their various exhibitions; and the Royal Horticultural Society—are not their committees elected by the council or otherwise, and then again divided up amongst themselves for sub-committees and judges? Then why should the N.C.S. be singled out for such a "scandal." If your correspondent, who hides himself behind the *nom de plume* of "A Country Member" (but perhaps resides no further from the centre of our meetings than many of us), could be persuaded to join the Executive Committee, and there be brought face to face with us, and the great amount of work which entails upon the several sub-committees, instead of throwing stones at us in the dark, we might be glad to welcome him as an enthusiastic member and co-worker, and by none more so than by—*J. H. Witty, Highgate.* [Our correspondent, "A Country Member," lives many miles from London. ED.]

CARNATION ROYALTY.—This variety is appearing in the cut flower market, and selling for high prices. It is a worthy compeer of Mrs. Thomas W. Lawson; a fine flower, deeper in colour than the latter, and the plant a good grower. *S. C.*

FERTILISATION OF SWEET AND "EVERLASTING" PEAS.—I have been interested in the correspondence regarding the fertilisation of Sweet Peas, as I have been trying some crossing of species of Lathyrus, annual and perennial. This summer, when crossing the "everlasting Pea" (Lathyrus latifolius), a bumble-bee came round and "plopped" out a flower close in front of my face. The weight of the bee depressed the keel, and the stigma was exposed from its sheath for about a quarter of an inch, and was undoubtedly brushed by the body and legs of the bee as it scrambled over the flower; the stamens were not exposed at all. I had hitherto supposed that all Lathyrus species were self-fertilising, and had never taken the precaution to protect the flowers from winged insects, but since then I have done so with annual as well as perennial species. I have never seen the effect of a bee settling on a Sweet Pea flower, but I suspect the result would be the same, because on pressing the keel more or less as a bee would do, the stigma was exposed in much the same way as was the case with L. latifolius; and this is now confirmed by Mr. McDonald's communication. This observation, showing that pollen can be conveyed from one flower to another by bees, &c., together with my experience that in most perennial species of Lathyrus, some flowers in a spike set and some do not, quite promiscuously, has given me reason to think that the perennial species of Lathyrus — or, at any rate, Lathyrus latifolius — are not always self-fertilised, and possibly not normally so; and this opinion is strengthened by having observed that in perennial species the stigma is not ripe at the time the anthers begin to discharge their pollen, and in some cases not till twenty-four hours after. But I daresay this is all very well known. With regard to annual species, and Sweet Peas especially, it seems to be an almost universal experience that they "come very true," and this would be very likely, even if pollen can be and is conveyed from flower to flower by insects, for the stigma and pollen always, so far as my observation goes, ripen simultaneously. *A. J. Bliss.*

RATS AND DESSERT APPLES. — A curious instance of selection of dessert fruit by rats has just come to my notice. It appears some rats obtained admission to the fruit-room, or rather fruit-store, for notwithstanding it contains a large and valuable assortment both of culinary and table fruits, the store-house is a makeshift place, and was intended to serve as a stable and harness-room. The rats made an opening into the building, and despite the fact that large quantities of Blenheim Orange, Cox's Orange Pippin, Peasgood's Nonsuch, American Mother, Ribston Pippin, Golden Noble, and many others, were in bulk, and on a similar level staging, these uninvited visitors only selected one variety for their use, and this one the well-known King of the Pippins. Many lovers of the fruit may not agree with the selection, considering there were so many more available of better varieties. It is, of course, an open question as to whether this kind was selected by reason of its convenient size. Be this as it may, their attention was not rivetted on one fruit, for in common with their method a large number were sampled apparently on the stage where they were set. After nibbling them, and leaving the chips about, they carried the whole of the now damaged fruits a short distance, and piled them in a heap in one corner. Seeing that quite a bushel had been so spoiled, it is matter for congratulation their visits were discovered before the damage assumed greater proportions. *E. J.*

BLUE HYDRANGEAS.—I think the cause of the change of colour will be found in the soil. I know of a cottage in Gloucestershire, in the front of which are growing two plants of Hydrangea, which are about 5 yards apart. The one produces lovely blue flowers each year, and the other plant pink. I have seen them for nearly twenty years, and have several times taken cuttings from the blue variety and propagated them, but in every case they produced pink flowers. Both plants are fully exposed to the sun all day. When I saw them in the beginning of September last, the blue variety was then carrying six dozen splendid trusses, and it looked very fine indeed. It seems strange that in so short a distance apart the two distinct colours should occur, but that cuttings taken from the blue variety should always produce pink flowers, seems to indicate there is something peculiar in the soil that is responsible for the blue colour. *T. S., Goodrich Court Gardens, Ross.*

THE LOGANBERRY.—Referring to the paragraph under Loganberry in your issue of Dec. 6, we claim to have first introduced this fruit into this country from America. The Loganberry is a true hybrid between the Red Raspberry and the Blackberry, and was raised by Judge Logan, of California, U.S.A. The Loganberry is of a semi-trailing habit, throwing out long vigorous canes, which bear profusely the following year, and undoubtedly it bears the best fruit when trained on a rough trellis or on a wall. During the past two or three seasons, we have seen enormous crops of Loganberry in different parts of the country. Our Mr. Fell saw a crop of Loganberry in July of this year, and also in 1901, in the garden of Mr. Wood, Manager of Isle of Man Railway, on the outskirts of Douglas. Mr. Wood planted, in the first or second year the Loganberry was introduced, four plants on a rough stone wall, about 20 yards in length, training them on telegraph wires, and when Mr. Fell saw them they were literally covered with luscious fruit. Mr. Wood informs us that he never takes out the old wood, but simply ties up the young growth, and the old wood practically disappears. The colour of the fruit is deep reddish-maroon, and it is much larger than any of our ordinary Raspberries or common Blackberries, a fact which is not surprising, as many of the American Blackberries are larger than our common Blackberry. The difficulty, however, in growing all the varieties of American Blackberries in England, is that they do not ripen in the generality of years before frost sets in, but with the Loganberry this is quite different, as with us in the North of England, the Loganberry is over by the end of August, and it is generally ready to gather in the month of July. It is quite evident that too much should not be expected from the Loganberry the first season, but after that it is very prolific. Should your correspondent wish, we shall be glad to send him a section of Loganberry branch, so that he may compare with that which he has. We are afraid some plants have been sent out under the name of Loganberry which have been raised from seed, and if your correspondent has got hold of some of these, it may account for his confusion, as the Loganberry does not come true from seed, but sports very much. *Wm. Fell & Co., Ltd., Hexham.*

REPLIES.

GUARUMBO. — In answer to the enquiry on p. 402, November 29, concerning this plant, it may be pointed out that Dr. Ramirez in his *Sinonimia de las Plantas Mexicanas* stated that this is Cecropia mexicana of Hemsley. *S.*

SOCIETIES.

ROYAL HORTICULTURAL.

DECEMBER 9.—The last meeting of the Committees for the present year was held on Tuesday last in the Drill Hall, Buckingham Gate, Westminster. Orchids were not nearly so numerous as on the previous occasion, but there was a larger display of flowers and fruits in the hall than might have been expected in such exceedingly cold weather.

The ORCHID COMMITTEE made no awards to novelties, but there were several groups staged in which species, and varieties of Cypripedium largely predominated.

The FLORAL COMMITTEE recommended Awards of Merit to a semi-double variety of Primula obconica, shown by Sir TREVOR LAWRENCE; and to Bouvardia King of Scarlets, shown by Mr. J. ROBSON, nurseryman, Altrincham. Eight medals were awarded to groups of plants and flowers, amongst which Messrs. VEITCH's hybrid Begonias, and Messrs. WELLS' Chrysanthemums were conspicuous.

The FRUIT AND VEGETABLE COMMITTEE recommended a First-class Certificate to a new cooking Apple, shown by Col. the Hon. C. HARBORD's gardener, Mr. W. Allan; and an Award of Merit to a Pear from Mr. RASCHEN, of Sidcup. There were excellent collections of Apples from several trade firms, to whom four medals were awarded. There will not be another meeting of the Committees until five weeks.

Floral Committee.

Present: H. B. May, Esq. (in the Chair); and Messrs. Jno. Jennings, Geo. Nicholson, R. Dean, E. Molyneux, J. F. McLeod, Jas. Hudson, Chas. Dixon, W. Bain, H. J. Cutbush, Chas. E. Pearson, R. C. Notcutt, H. J. Jones, Chas. E. Shea, W. P. Thomson, E. H. Jenkins, J. H. Fitt, C. Blick, H. Turner, F. Page-Roberts (Rev.), and Chas. T. Druery.

Messrs. W. BULL & SONS, 536, King's Road, Chelsea, had a group of Cycadaceous plants on the floor in the centre of the hall. Some of these plants were 7 feet high at least, and had a spread of an equal distance. The species shown included Encephalartos caffer, E. regalis, with longer fronds than those of E. caffer, being more graceful; E. villosus, E. longifolia, Zamia brevifrons, Dioon edule, Ceratozamia fusco viridis, &c.

Messrs. BULL & SONS also showed some small plants of Hydrangea speciosa nivalis, the centre of the leaves being variegated white or cream-coloured, and having a margin of deep green colour about three-quarters of an inch wide. It was very effective, needing only a cool atmosphere.

Messrs. JAS. VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea, again made a very fine show of their new winter-flowering Begonias, known as the B. socotrana hybrids. We have frequently referred to the effectiveness of these hybrids at the various winter exhibitions, and it is evident that the plants bloom profusely and continuously for a period of three or four months. All the varieties displayed on Tuesday last have been described in these pages. They are Winter Cheer, Ensign, Julius, and Agatha. The last-named variety is from a cross between B. socotrana and Begonia × Moonlight. It is like Gloire de Lorraine, but the habit is dwarfer, and the flowers expand more fully. A compact form of this variety was certificated at the previous meeting.

The pretty decorative plant, Jacobinia chrysostephana, was shown again in a little group of plants from Messrs. VEITCH. They varied from 1 foot to 2 feet in height. This old plant may be strongly recommended to gardeners for the adornment of the warm conservatory, where its rich orange-coloured flowers are very effective (Silver-gilt Banksian Medal).

An early exhibit of Freesias in flower came from A. SETH SMITH, Esq., Silvermere, Cobham (gr., Mr. Jas. Quarterman).

Messrs. W. WELLS & Co., Ltd., Earlswood Nurseries, Redhill, Surrey, made a fine display of Chrysanthemum flowers of decorative varieties, with a few exhibition sorts, of which Mrs. E. Thirkell and General Hutton were most in character. The decorative varieties were most attractive, and the display was a good representation of the various types; the single-flowered included Mrs. Carter, and the other varieties with thread-like florets were mixed with the larger decorative or Japanese flowers (Silver Flora Medal).

Mr. H. B. MAY, Dyson's Road Nursery, Upper Edmonton, exhibited a group of Ferns and Carnations. The Ferns included Polypodium glaucum Asplenium

Fabiana, &c. The best of the Carnations were Prince of Wales, dark crimson; Resplendent, scarlet; Mrs. T. W. Lawson, and Snowflake (Silver Banksian Medal).

Messrs. W. Cutbush & Sons, Highgate Nurseries, London, N., made another very pretty display of cut flowers of choice varieties of Carnations; an ornamental stand furnished with blooms of the excellent white variety, Mrs. S. J. Brooks, had a most charming effect; and amongst the other fine varieties were Sir Hector Macdonald, and Duchess of Portland (pink).

Messrs. Thos. Rochford & Sons, Turnford Hall Nurseries, Broxbourne, made an excellent show of the Begonia Gloire de Lorraine, and their white sport, "Turnford Hall;" the type and sport were shown as pot specimens, and as specimens in teak-wood baskets, these latter being exceptionally fine. The sport grows quite as freely, and with as much vigour as its parent (Silver Banksian Medal).

Mr. Geo. Carpenter, West Hall Gardens, Byfleet, exhibited several decorative varieties of Chrysanthemum; W. Baxter, crimson, rather loose in floret, and Winter Scarlet.

Count Seilern, Frensham Place, Farnham (gr., Mr. W. J. Prewett), exhibited a collection of cut Chrysanthemums, mostly of exhibition varieties, in fine condition for the date of season (Bronze Flora Medal).

An exceedingly pretty basket of Chrysanthemum blooms was shown by Miss Easterbrook, Fawkham, Kent. The blooms were all white ones, and an excellent single flower showed to very great advantage, intermixed with others with thread-like florets, &c.

G. Ferguson, Esq., The Hollies, Weybridge (gr., Mr. F. W. Smith), exhibited several pretty seedling varieties of single-flowered Chrysanthemums.

Zonal Pelargoniums from Messrs. H. Cannell & Sons, Swanley, who exhibited them in sprays in finger-glasses, were grand. The size of the flowers was not less remarkable than their brilliant colours. Particularly fine were the two new varieties, Duke of Norfolk, crimson, shaded with purple; and Princess of Wales, rosy-red. Amongst the forty varieties staged we noticed Lady Lawson (pink), and The Sirdar (scarlet), conspicuously (Silver Banksian Medal).

Messrs. Barr & Sons, King Street, Covent Garden, London, W.C., exhibited some early Roman Hyacinths in pots. They were very freely flowered, and the flower-stems extra strong and tall. The bulbs are imported direct from Asia Minor, and they may be forced into flower some three weeks earlier than the ordinary French bulbs. A variety with smaller flowers, tinted with rose colour, was called Rosy Gem.

Awards of Merit.

Bouvardia King of Scarlets. — This is an excellent variety, with good-sized flowers of vivid scarlet colour, shown by Mr. John Robson, Bowdon Nurseries, Altrincham.

Primula obconica semi-plena.—Sir Trevor Lawrence, Bart., Burford, Dorking (gr., Mr. W. Bain), exhibited a plant of this well known Primula, having semi-double flowers, which were purplish in colour.

Orchid Committee.

Present: Harry J. Veitch, Esq. (in the Chair); and Messrs. Jas. O. Brien (hon. sec.), Norman C. Cookson, J. G. Fowler, de B. Crawshay, H. Ballantine, F. A. Rehder, H. T. Pitt, W. H. White, A. Hislop, F. W. Ashton, E. Hill, J. Douglas, J. W. Odell, F. J. Thorne, W. Boxall, W. H. Young, J. Charlesworth, J. W. Potter, T. W. Bond, and H. Little.

Despite the cold weather, the Orchids formed an important feature in the show.

O. O. Wrigley, Esq., Bridge Hall, Bury (gr., Mr. Rogers), was awarded a Silver-gilt Flora Medal for a magnificent group of Cypripediums, grown and flowered to perfection, one fine plant of C. × Arthurianum, with nine flowers, securing the only award other than medals, viz., a Cultural Commendation. The group consisted largely of fine forms of C. insigne, including C. i. Sanderæ, and eight other yellow varieties; also two fine C. i. Harefield Hall, C. i. corrugatum, with curiously corrugated lip; the new C. i. Barryanum, which may be likened to a light-tinted C. i. Harefield Hall, and with wavy-edged upper sepal. The C. × Leeanum varieties, including giganteum, Clinkaberryanum, &c., were also fine; the forms of C. × Euryades, handsome, and showing great variation in colour, that named incomparabilis having the greater part of the dorsal sepal of a rich purple tint, the Bridge Hall variety being spotted with the same colour. C. × Lathamianum, Bridge Hall variety, is a noble flower; C. × calloso Warneri, fine in colour; and C. × gigas Corndeani, a good hybrid.

W. E. Budgett, Esq., Henbury, near Bristol, secured a Silver Flora Medal for a very fine group of Cypripediums, in which the yellow and other rare forms of C. insigne were well represented. C. i. Evelyn Budgett was a good round flower with a large amount of white in the upper sepal, and other distinguishing features; C. i. Effie Budgett, a pretty flower, approaching C. × nitens. Also remarkable in the group were good forms of C. × Leeanum, the best being G. S. Ball's variety of C. × L. magnificum, C. × Milo, and other hybrids. The exhibit was all the more praiseworthy because they were grown by Mr. Budgett himself, an amateur, not employing a gardener.

Messrs. Jas. Veitch & Sons, Chelsea, were awarded a Silver Flora Medal for a good representative group of their winter-flowering Cattleyas, Lælio-Cattleyas, &c.; also a good selection of Cypripediums, including forms of C. × Leeanum, C. × Euryades, C. × Thalia, C. × Œnone, and others, the novelty being C. × Katherine (callosum Sanderæ × superbiens), a very pretty rose-tinted flower, with the graceful contour of C. callosum.

Messrs. Hugh Low & Co., Bush Hill Park, staged a group in which were Lælio-Cattleya × Whateleyæ, Cypripedium × Leeanum compactum, C. × Actæus, C. × Niobe magnificum, C. × Swinburnei magnificum, C. insigne Ernesti, &c.

Norman C. Cookson, Esq., Oakwood, Wylam (gr., Mr. H. J. Chapman), showed Cypripedium × Leeanum Clinkaberryanum, and C. × Actæus punctatissimum.

F. A. Bevan, Esq., Trent Park (gr., Mr. Parr), showed, the Trent Park variety of Odontoglossum crispum guttatum.

H. S. Leon, Esq. (gr., Mr. Hislop), sent Cattleya × Barbara (Bowringiana × Trianæi).

C. H. Feiling, Esq., Southgate (gr., Mr. Stocking), showed two Oncidiums near to O. prætextum, but bearing some evidence of O. curtum.

G. W. Law-Schofield, Esq. (gr., Mr. Shill), sent a good flower of Cypripedium × Evelyn Ames.

W. Thompson, Esq., Walton Grange (gr., Mr. W. Stevens), showed Cypripedium insigne Babette, obtained by crossing C. i. punctatum violaceum, and C. i. albo-marginatum. The flower is very fine in form, the large dorsal sepal almost wholly pure white, with rose-purple spots. Also Odontoglossum × loochristyense "Annie," a large pale yellow flower with brown blotches.

Mr. A. J. Keeling, The Grange Nurseries, Westgate Hill, Bradford, sent Cypripedium × Bingleyense, and C. × Leeanum, Keeling's variety, both good.

Mr. Alfred Gribble, The Plas Gardens, Machynlleth, N. Wales, sent two good forms of Lælia anceps.

J. Gurney Fowler, Esq. (gr., Mr. J. Davis), showed the bright yellow Lælia × Mrs. Gratrix, Fowler's var.

Fruit and Vegetable Committee.

Present: H. Balderson, Esq., in the Chair; and Messrs. Jos. Cheal, W. Bates, S. Mortimer, Alex. Dean, Ed. Beckett, W. Fyfe, H. J. Wright, Geo. Kelf, P. C. M. Veitch, H. Somers Rivers, H. Markham, J. Jaques, F. Q. Lane, Geo. Wythes, Jas. H. Veitch, W. Poupart, and Henry Esling.

A splendid collection of Apples was staged by Messrs. Rivers & Son, Sawbridgeworth, Herts. Some of these had been cultivated in the orchard-house, and were highly developed, richly coloured specimens, such as this firm have shown on previous occasions. The others were also of excellent quality. The varieties were Emperor Alexander, Washington, King of Tompkin's County, Lord Burghley, Belle de Pontoise, King of the Pippins, Melon Apple, Hollandbury, Cox's Orange Pippin, Peasgood's Nonsuch, Annie Elizabeth, Gloria Mundi, Mannington's Pearmain, Gascoigne's Scarlet Seedling, Baxter's Pearmain, and Reinette Dorée de Hensgen (Silver-gilt Knightian Medal).

Messrs. H. Cannell & Sons, Swanley, Kent, exhibited a fine display of Apples in 100 varieties. In addition to the fruits staged on dishes, there were large baskets in which such popular varieties were displayed as Lane's Prince Albert, Blenheim Orange, Lord Derby, Peasgood's Nonsuch, &c.; also five stands with brass arms for the display of single dishes of fruit. These were relieved with cut foliage of Cyperus and Ferns, and gave an effective appearance to the exhibit. The fruits were the produce of field cultivation, and generally they were highly coloured, clean, and of excellent size; Cox's Orange Pippin, Bismarck, Stirling Castle, Beauty of Kent, Worcester Pearmain, and Gascoigne's Scarlet Seedling, were noticeable amongst the varieties shown (Silver Knightian Medal).

A very commendable exhibit of Apples from B. W. Whiting, Esq., Credenhill, Hereford, was awarded a Silver-gilt Knightian Medal. There were nearly fifty varieties, and the quality reflected very high credit upon this amateur exhibitor.

Messrs. J. Cheal & Sons, Lowfield Nurseries, near Crawley, exhibited a very large collection of good Apples, in which some first-class Sussex Apples were associated with most of the best standard varieties. We noticed Crawley Reinette, The Queen, Bismarck, Lord Derby, Lane's Prince Albert, Jubilee, Barchard's Seedling, Blenheim Orange, Newton Wonder, Alfriston, Sandringham, Bramley's Seedling, Paroquet, Caroline, Golden Spire, &c. Also a few dishes of Pears, including Alexander Lucas (Silver Knightian Medal).

Fruits of the Chou-Chou (Sechium edule) were shown by Mr. W. H. Patterson, University College, Reading.

A new black Grape was shown by W. J. Thompson, Esq., Sevenoaks, Kent (gr., Mr. Henry Crawley). It was described as a cross from Black Alicante and Black Prince, the seeds of which were sown in November, 1898. It is called Crawley's Nippington Grange Seedling, but the fruit lacked flavour.

Awards.

Apple, Norfolk Beauty.—This is a large cooking variety shown by Mr. W. Allan, gr. to Col. the Hon. C. Harbord, Gunton Park, Norwich, who describes the variety as a chance seedling from Warner's King and Waltham Abbey Seedling, or Dr. Harvey, as this Apple is known in Norfolk. It appears that these two varieties were growing near together where the seedling appeared, and the fruits certainly bear some resemblance to those varieties. The fruits of the seedling are said to be in condition for use in September, when gathered from the tree, but they will keep perfectly well until the end of the month of January. The fruit is rather broader than it is high, is uneven in outline, and has a large eye in an uneven, but spacious depression; the stalk is less than three-quarters of an inch long, inserted in an even, rather deep cavity, which is more or less lined with russet. The fruits as shown were yellow, some of them showing signs of red colour upon the exposed side; mostly smooth, but traces of russet appearing occasionally, especially on the smaller fruits. Mr. Allan states that he has cultivated the variety for several years, and it has not failed to produce a heavy crop (First-class Certificate).

Pear, Gris-Dechin. — Fruits of this variety were shown by Mr. H. H. Raschen, Sidcup, Kent. It is described as an old Belgian variety, but is possibly not known much in this country. The fruits are of medium size, with deep eye showing little or no segments; stalk, half an inch long; colour brownish-yellow, covered with thick russet; flavour good, and flesh of melting texture (Award of Merit).

Chiswick, December 5.—A meeting of the Fruit and Vegetable Committee was held here on this date to deal with late or main crop Potatos, held over from a previous meeting, to be cooked a second time, after the tubers had become more matured. In spite of the wintry weather, over a full quorum attended. Mr. H. Balderson presided; and there were also present Messrs. O. Thomas, W. Bates, G. Kelf, G. Reynolds, J. Willard, G. Wythes, S. Mortimer, H. J. Wright, G. H. Miles, and A. Dean. Ten varieties, all capitally cooked in their coats were presented for tasting. All had, when lifted, proved to be capital croppers and quite free from disease. So far they merited all praise. When cooked in the autumn all were found to be immature. On this occasion an Award of Merit was given to Victoria Improved (Sharpe), a fine round variety, white of skin, and excellent in flesh and flavour. The voting for this was unanimous. Alderman (Sharpe) had an equal number of votes for and against, and a somewhat similar result happened to Springfield (Dobbie), the votes being six to four. Other kinds tried included Marfield (Bristow), Dalmeny Beauty (Smith), Favourite (Dobbie), a great cropper but lacking maturity; and Lord Roberts. It was desired that the six above named varieties be tried again, when the season for Potatos may be more favourable to the tubers. The Committee specially desired to mark their sense of the admirable way in which the tubers were cooked and sent to table.

It was reported to the Committee that the vegetable trials sanctioned by the Council next year were as usual, Peas, Potatos, and Tomatos, with as very special ones Vegetable-Marrows, and dwarf and climbing Kidney Beans.

CROYDON AND DISTRICT HORTICULTURAL MUTUAL IMPROVEMENT.

DECEMBER 2.—A meeting was held in the society's room at the Sunflower Temperance Hotel on the above date, Mr. W. J. Simpson in the Chair. There was a very good attendance. The subject of the evening was a lecture by Mr. W. J. Dyson, Fern-grower to J. Hill & Son, Lower Edmonton, on "Stove and Greenhouse Ferns." Mr. Dyson described the different genera of Ferns, and noted the most useful and interesting species and varieties, and detailed their cultural requirements. He also illustrated his lecture with over fifty named specimens.

DEVON AND EXETER GARDENERS' ASSOCIATION.

DECEMBER 3.—A paper was read at a meeting of the Devon and Exeter Gardeners' Association at the Guildhall, Exeter, on the above date, by Mr. W. Andrews, of the Exeter Public Grounds, on "Miscellaneous Bulbous-rooted Plants for the Flower Border." The chair was occupied by Mr. S. Radley. Most of the members of the smaller bulbous family were either natives of the Cape or South America, so that a sunny, well-drained spot suited them the best. Others were tender, and required to be taken from the ground, and stored in a dry place in sand, or some such material until the danger of injury by frost was over. These must not be exposed to the air too long, or they shrivelled and were no good. As a rule, gardeners experienced a great deal of difficulty in getting many kinds of the smaller bulbs, and employers, although willing to give many shillings per dozen for Hyacinths, would often think it a lot of money for a hundred of some of the smaller species of bulbs.

BECKENHAM HORTICULTURAL.

DECEMBER 5.—On the occasion of the meeting held on the above date, E. LOVETT, Esq. (President of the Croydon Naturalists Society), read a paper on "Insect-feeding Birds, and how to encourage them." He maintained that before man interfered with the never-erring balance of Nature, no one thing ever became abnormally abundant. Man by growing large quantities of food plants for his own use had also encouraged by Nature's laws, insects and enemies to those particular plants. The sparrow by attaching himself to the habitations of man, had ceased to be a natural bird, building a nest of refuse without form or character, and breeding at almost any season. He was a clever and audacious thief, and a most destructive agent. Living upon the farmers' corn, or by charity upon the town-dwellers scraps, thereby starving many insect-feeding birds, who are the true friends of mankind. The *modus operandi* recommended to reduce the number of sparrows was simply to ignore them, not to feed them, but let them work to find food, and thereby become respectable members of the community. Wholesale destruction by shooting, trapping, or poison, finds no favour with Mr. Lovett. All birds were classed under three heads, viz., flesh-eating, seed-eating, and insect-eating, which could always be distinguished by their bills, hooked, conical, or sharp-pointed. The insect-feeding birds had always sharp-pointed bills. Swifts, swallows, cuckoos, rooks, hedge-sparrows (no relation whatever to the common sparrow), wrens, tits, and pied wagtails, were given as examples of beautiful birds of plumage and song of inestimable value in the destruction of insects, larvæ, grubs, &c. An appeal was made to feed those which remained with us during the winter, by hanging bones, pieces of fat, &c., to trees; this arrangement completely baffled the sparrow, whose inbred cunning, led him to fancy them traps.

Nesting-boxes as used by the London County Council in their parks and gardens were exhibited. W. GROVES, Esq., who for sixty years has been interested in birds, occupied the Chair.

LIVERPOOL HORTICULTURAL ASSOCIATION.

ON Saturday evening, the 6th inst., a large number of members met together to hear Mr. Francis Ker, of the Aigburth Nurseries, deliver his discourse on "Bulbs and Plants for Early Forcing." The lecturer emphasised the importance of buying good bulbs, &c., which have been well grown and thoroughly ripened. In the case of early Tulips to flower at Christmastide, he recommended gardeners to force them beneath the plant-stages, and cover them with garden mats; and he laid stress upon the selection of suitable varieties. His selection was, further on in the evening, acknowledged to be of the best, and included the favourite varieties of Tulips, Freesias, Narcissus, Spiræas, the new shrubby variety Anthony Waterer being specially recommended; Azalea mollis and A. indica, French Lilac, Tea Roses, Deutzias, Liliums, Hydrangeas, and Wistaria sinensis. An interesting discussion followed as to the best methods of forcing Lily of the Valley, and it was acknowledged that sphagnum should be used in preference to Cocoanut-fibre or soil, and that retarded crowns alone be grown. Jadoo-fibre was highly recommended for the forcing of other bulbs.

Mr. HAYNES, Birkenhead, brought for inspection some Amaryllis bulbs, which had been grown out-of-doors, and to all appearance seemed to be very promising. A vote of thanks was accorded Mr. Ker for his admirable paper, and to Mr. Foster for presiding. *J. S.*

UNITED HORTICULTURAL BENEFIT AND PROVIDENT.

AT a meeting on Monday evening last, Mr. C. H. CURTIS presiding, seven new members were elected; twelve members were reported on the Sick Fund; two members were granted £1 10*s.* each from the Convalescent Fund, and a cheque for £59 18*s* was granted to a lapsed member, being the amount standing to his credit in the ledger.

THE SMITHFIELD CLUB.

DECEMBER 8, 9, 10, 11, 12.—The annual show of fat cattle in the Royal Agricultural Hall, Islington, is one of the most convincing signs to Londoners that the season of feasting and rejoicing is directly upon us. There are displayed the best results of the most scientific breeding and feeding practised in this country, a country whose reputation for beef and beef-eaters is at least a remarkable one. If the *Gard. Chron.* representative had been an advanced vegetarian, his impressions of the show during a visit on Monday last would have been of the saddest. Not only did he see the monstrous specimens of fatted animals, including sheep and pigs; but in the galleries most of the best-known seedsmen made imposing displays of roots and vegetables, grown for the special purpose of feeding the animals to the greatest size in the shortest time possible. The zealous vegetarian would no doubt condemn as worse than wasteful the conversion of so much wholesome vegetable food into flesh food; but we are not all exclusively vegetarian, and the writer found a certain amount of interest in an inspection of the score or so 1st prize animals from H.M. the KING, and of Earl STRATHMORE's splendid Aberdeen-Angus heifer "Layia of Glamis," which was adjudged to be the best beast in the show.

At the same time an objection that is sometimes urged against horticultural exhibitions, to the effect that exhibited produce has been cultivated to a degree which renders the fruits and vegetables less fit for consumption, might be applied with greater force in respect to the Smithfield cattle. They seem to show what is possible in size, weight, and fatness, rather than illustrate the type of beast likely to furnish the best joint of meat. In walking through the galleries where the seedsmen's roots are displayed, and remembering the biological axiom that within certain limits "like begets like," there is nothing inappropriate in the extraordinary size and weight of the Mangles, Swedes, and Turnips exhibited, for do not the huge beasts obtain their size from these?

Messrs. SUTTON & SONS, of Reading, had a stand upon which the largest roots obtainable were arranged and displayed in a manner that made them attractive if not beautiful. Prizewinner Mangel made a good "solid" centre, and is stated to be the heaviest cropping Globe Mangel that exists. Other varieties displayed were Golden Tankard, Mammoth Long Red, and others. Of Swedes, Messrs. SUTTON had Magnum Bonum, as great and good as could be wished, also Crimson King. Of Turnips, the new variety Centenary, with a netted exterior similar to that of a Melon, was again conspicuous; and older varieties included Favourite, which has been awarded the Gold Medal of the Highland Society of Scotland.

Messrs. SUTTON had also specimen bunches of natural grasses for pastures, grass-seeds, Peas, and Beans, and a good display of Potato tubers, of such varieties as Ideal, Windsor Castle, Satisfaction, Triumph, Reliance, Supreme, The Sutton Flourball, Abundance, and a new variety named Discovery.

Messrs. ED. WEBB & SON, Wordsley, near Stourbridge, drew particular attention to the fact that some of their roots of Imperial Swede were drawn from a crop weighing 58 tons per acre, grown by Mr. R. ROBERTS, Brongadair, Portmadoc, and the same Swede has won 1st prize at the Birmingham Show for 25 years. The New Smithfield Yellow Globe Mangel roots were said to have been drawn from a crop at Chepstow, of 93 tons to the acre.

Other varieties of Mangels, Swedes, and Green Globe and other Turnips, were shown by Messrs. WEBB; also some attractive seeds of select cereals, as Newmarket Oat, Kinver Chevalier Barley, and other specialties. A collection of Potatos included two new varieties for next season, Table King, and Webb's Guardian. The two handsome Challenge Cups offered by Messrs. Webb at the Birmingham and Edinburgh exhibitions gave considerable effect to their exhibit.

A very rich-looking stand was that of Messrs. JAS. CARTER & Co., High Holborn, London, where the tremendous roots of Windsor Mangel, from the King's estate, attracted considerable attention; Warden Yellow Globe Mangel, Mammoth Long Red, Golden Tankard, Goldfinder, &c.; also Holborn Elephant, and Kangaroo Swedes. Amongst Potatos were good tubers of Snowball, Monarch, Holborn Abundance, &c.; and of Onions there were fine bulbs of the variety Record. Samples of choice varieties of grains were displayed

Messrs. W. HORNE & SON, Cliffe near Rochester, had some choice Apples, culinary and dessert varieties, including their new one, Chas. Ross.

Messrs. R SMITH & Co., of Worcester, who we have not noticed at these exhibitions previously, showed roots, grains, Peas, and fruits of Apples and Pears. Their samples of Gradus and Telegraph Peas were exceedingly good.

Messrs. W. & J. BROWN, Stamford and Peterborough, had 130 dishes of Apples, all of the varieties being those considered of excellent quality in Lincolnshire. Also cut flowers of varieties of Carnations.

Messrs. E. W. KING & Co., Coggeshall, had big roots of Prizewinner and Orange Globe Mangels, also Swedes, and Turnips. Of vegetables they showed Yellow Belgian Carrot, Magnum Bonum Parsnip, Prizewinner Onion, and seeds of Peas of Gradus, Veitch's Perfection, and Earliest-of-All were good.

Messrs. HARRISON & SONS, of Leicester, gave prominence to their Seville Orange Globe Mangel, Improved Green Barrel Turnip, Defiance Swede, and they had Potato tubers and Carrots, excellent Peas, including Ameer.

Messrs. GARTONS, of Warrington, made displays of their new "pedigree" varieties of grain, especially their Black Tartarian Oat "Excelsior." Their "New Era" Wheat they believe to be the best put into commerce for twenty years past. "The Malster" Barley is also strongly recommended.

Mr. ALEX. BLATCHFORD, Coventry, had a good white Globe Turnip Pomeranian, and Peas, Beans, Carrots, and other vegetables.

Messrs. J. K. KING & SONS, Coggeshall and Reading, had an imposing stand on which John Bull was very prominent. We mean the "Swede" John Bull, also Yellow Intermediate Mangel. Of Potatos there were two new ones, named Good Hope and the Sirdar, both maincrop varieties, but Saint Paul is a very early Kidney Potato recommended for supplying the market early in the season.

Of Potato raisers there were several, Mr. A. FINDLAY, of Markinch, N.B., had tubers of Up-to-Date, Empress Queen, and other varieties that he has raised including Northern Star, a new one that has reached a most sensational price Mr. FINDLAY states that it has cropped 16 tons to the acre, and it is of excellent quality and a good cooker.

Messrs. FIDLER & SONS, Reading, exhibited tubers of a large number of varieties, comprising those of their own raising, and popular sorts from other raisers. Seed Potatos were also shown by Mr. THOS. A. SCARLET, Market Street, Edinburgh; and Mr. S. M. THOMSON, 7, Warrender Park Crescent, Edinburgh.

Amongst a variety of other exhibits were collections of cider from Messrs. GAYMER & SONS, Attleborough, Norfolk; and Messrs. T. H. GODWIN & SONS, Holmer, Hereford.

Obituary.

JAMES MORRISON.—Quite a shock was experienced in the gardening community of south-east Scotland when the news of the tragically sudden death of the above well-known gardener was published last week. The deceased experienced an apoplectic seizure on Wednesday, the 3rd inst., and lived only a few hours thereafter, dying in the fifty-third year of his age. Mr. Morrison was recommended by the late Mr. Dunn, of Dalkeith, as successor in Archerfield Gardens, to the late Mr. Thomas Kettles twenty-two years ago, and during that time the high repute gained for Archerfield and Dalton Castles Gardens by Mr. David Thomson was worthily maintained by the deceased. The greatest sympathy is felt for Mrs. Morrison and her six children in their sad bereavement.

At the funeral, which took place on Saturday, nurserymen and gardeners were present from widely separated districts. Mr. Morrison, it may be added, served many years on the Council of the Royal Caledonian Horticultural Society.

RALPH CROSSLING, PENARTH.—It is with great regret we announce the sudden death of Mr. Ralph Crossling, nurseryman, of Penarth,

near Cardiff, on Tuesday last. At the time of his death he was in the garden attached to the residence of Mr. J. W. Pyman, and in conversation with that gentleman, planning out an alteration in the garden, when he suddenly exclaimed, "I am paralysed." Mr. Pyman assisted him to the house, but deceased then lapsed into an unconscious condition, and died before the arrival of a doctor. Deceased was fifty-six years of age, and leaves a widow and four children, and was greatly respected in the district, having helped much in the work of the District Council, and other local bodies. Mr. Crossling was well known in connection with the cultivation of Roses, and has been an occasional correspondent to this Journal for many years. Mr. Andrew Pettigrew, of Cardiff Castle Gardens, in communicating to us the sad intelligence, points out that in our last number there appeared a short note from Mr. Crossling upon "Weight in Grapes," in which he pathetically said, referring to the grand show of autumn fruit at Edinburgh in 1875, "Looking back, it seems scarcely possible it can be so long ago; and yet how many of the then well-known faces are gone from our ken now." It seems strange that his death should follow three days after these words were published.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period Nov. 30 to Dec. 6, 1902. Height above sea-level 24 feet.

1902. NOVEMBER 30 TO DECEMBER	DIRECTION OF WIND	TEMPERATURE OF THE AIR. At 9A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	RAINFALL.	TEMPERATURE OF THE SOIL at 9A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	LOWEST TEMPERATURE ON GRASS.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
SUN. 30	E.N.E.	46·8	46·2	47·1	45·2	0·12	45·2	46·5	48·5	44·0
MON. 1	E.S.E.	44·9	44·3	49·7	44·0	0·11	45·9	46·8	48·7	43·2
TUES. 2	N.W.	47·1	44·6	50·1	44·3	...	46·0	47·0	48·5	34·0
WED. 3	S.S.E.	37·3	36·9	38·4	31·5	...	43·4	46·9	48·5	22·1
THU. 4	N.N.E.	30·3	29·5	34·7	28·2	...	40·6	46·0	48·5	22·1
FRI. 5	N.N.E.	31·5	31·0	33·8	25·1	...	38·7	44·8	48·5	15·3
SAT. 6	E.N.E.	32·0	31·6	32·3	29·1	...	37·9	43·9	48·2	28·0
MEANS	...	38·6	37·7	40·7	35·3	Total 0·33	42·5	46·0	48·5	29·8

Remarks.—With the exception of one day (Tuesday, Dec. 3) the weather during the week has been very cold and cheerless.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending Dec. 6, is furnished from the Meteorological Office:—

"The *weather* continued very wet and unsettled until towards the middle of the period, when it became much drier and finer generally, although some snow showers were experienced in many eastern and south-eastern localities.

"The *temperature* was below the mean, the deficit ranging from 1° in Scotland, N., and 2° in Ireland, N., to 4° in England, S., S.W., and E., and to 5° in the Midland Counties and England, N.W. The highest of the maxima occurred during the earlier part of the time, and the lowest of the minima either on Friday or Saturday. The former ranged from 55° in the Channel Islands, and 54° in England, S.W., to 47° in Scotland, E., and England, N.E., while the latter were as low as 16° in Scotland, E., 17° in the Midland Counties, 18° in England, N.W. and E., and below 25° in nearly all parts of Great Britain. In the Channel Islands and Ireland, S., the minima were no lower than 28° and 29° respectively.

"The *rainfall* exceeded the mean in all the "Wheat-producing districts," and also in Scotland, W., and just equalled it in the Channel Islands, but elsewhere it was less than the normal.

"The *bright sunshine* varied considerably in different parts of the kingdom, in some districts being above and in others below the mean amount. The percentage of the possible duration ranged from 31 in England, S.W., and 26 in Ireland, N., to 15 in England, S., 8 in England, N.E., 7 in Scotland, W., and to 2 in Scotland, E."

THE WEATHER IN WEST HERTS.

A WEEK of very cold weather for so early in December. For two days the temperature in the thermometer screen never rose above 39°, and on five consecutive nights the thermometer exposed on the lawn registered from 13° to 17° of frost. The cold indicated by the last-named reading has, I find, on four occasions during the last sixteen years, been exceeded in November, and on three previous occasions lower temperatures have been recorded earlier in December. The ground is becoming very cold, the temperature at two feet being already 2° colder, and that at one foot 4° colder than is seasonable. Snow fell on two days, but at no time was the fall sufficient to cover the ground. No measurable quantity of rain-water has come through the percolation gauge on which short grass is growing for five days, and during the same period only small quantities have come through the bare soil gauge. The sun shone on an average during the week for two hours a day, which is about three-quarters of an hour a day in excess of the December average. The winds have been mostly very light, and for the last six days have come exclusively from north and north-east. The atmosphere has remained on the whole unusually dry for the time of year. *E. M., Berkhamsted, Dec. 9, 1902.*

GARDENING APPOINTMENTS.

Mr. G. STRATFORD, for the past three years Gardener at Oakfield, Eden Park, Beckenham, and previously Foreman at Redleaf, Penshurst, as Gardener to Dr. TULK HART, Totteridge, Hove, Brighton.

Mr. CHAS. WILSON, fourteen years as Head Gardener at Branksome Tower, Bournemouth; and of Stoneleigh, Ewell, as Head Gardener to Major ARBUCKLE, Stawell House, Richmond, S.W.

Mr. THOMAS STEVENSON, for the past four years Head Gardener at Woburn Place, Addlestone, as Gardener to E. MOCATTA, Esq., at the same place.

CATALOGUES RECEIVED.

DICKSONS, Chester.—General Nursery Stock.

HOGG & ROBERTSON, 22, Mary Street, Dublin—Forest and Ornamental Trees and Shrubs, Roses, Fruit Trees, &c.

W. W. JOHNSON & SON, Ltd., Boston, Lincolnshire—Wholesale Trade List of Vegetable and Flower Seeds.

FOREIGN.

FAVA & RADL, Naples—Flower and Vegetable Seeds, &c.

VILMORIN, ANDRIEUX ET CIE., 4, Quai de la Mégisserie, Paris—Trees and Shrubs, Seeds; and of Stove and Greenhouse Plants.

PAPE & BERGEMANN, Quedlinburg, Germany—Novelties in Flowers and Vegetables for 1903.

MARKETS.

COVENT GARDEN, December 11.

[We cannot accept any responsibility for the subjoined reports. They are furnished to us regularly every Thursday, by the kindness of several of the principal salesmen, who revise the list, and who are responsible for the quotations. It must be remembered that these quotations do not represent the prices on any particular day, but only the general averages for the week preceding the date of our report. The prices depend upon the quality of the samples, the supply in the market, and the demand, and they may fluctuate, not only from day to day, but often several times in one day. ED.]

FRUIT.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Apples, English, per sieve	2 0	3 6
— Blenheims, per bushel	5 0	7 0
— Cox's Orange Pippin, per sieve	3 0	6 0
— King's, per bushel	4 0	5 0
— Wellingtons, Harveys and various cookers, per bush.	3 6	7 0
— American, per barrel	14 0	30 0
Bananas, bunch	7 0	12 0
— loose, dozen	1 0	1 6
Chestnuts, French, per bag	7 0	11 0
— Italian, p. bag	21 0	—
Cobnuts, per lb.	0	3½ 0 4
Cranberries, case	15 0	—
— keg	2 6	—
Grapes, Belgian, per lb.	0	6 0 8
— Alicante, lb.	0	8 1 0
— Colman, A, lb.	1	6 2 0
— — B., per lb.	0	8 1 0
— Muscats, A., lb.	3	0 4 0
— — B., per lb.	0	9 1 6
Lemons, per case	12	6 15 0
Lychees, packet	0	11 —
Oranges, case	8	0 12 0
Pears, per crate	2	0 3 0
— stewing, per crate	7	0 10 0
— F., crates	5	0 7 0
Pines, each	3	0 5 0
Walnuts, foreign, bags	8	0 10 0

VEGETABLES.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Artichokes, Globe, per dozen	2 6	3 0
— Jerusalem, per sieve	1 0	1 6
Asparagus, sprue, bundle	1 0	—
— Paris Green	5 0	—
Beans, dwarf, lb.	1 6	—
— Madeira, bkt.	3 0	—
Beetroots, bushel	1 0	1 3
Brussels Sprouts, per sieve	0 9	1 0
Cabbage, p. tally	1 6	2 6
Carrots, doz. bun.	1 6	2 0
— bag (washed)	2 6	2 9
Cauliflowers, per dozen	1 0	2 6
Celeriac, per doz.	1 6	2 0
Celery, per dozen bundles	8 0	12 0
Chicory, per lb.	0 3	0 4
Cress, per dozen punnets	1 3	—
Cucumbers, doz.	7 0	9 0
Endive, per doz.	1 0	1 6
Garlic, per lb.	0 3	0 3½
Horseradish, foreign, p. bunch	1 3	1 6
Leeks, p. dz. bun.	1 0	1 6
Lettuces, Cabbage, per dozen	0 9	1 0
Mint, doz. bun.	5 0	—
Mushrooms, house, per lb.	1 6	—
Onions, bag	3 6	4 0
— foreign, case	6 0	6 6
— picklers, per sieve	2 6	3 0
Parsley, per doz. bunches	1 6	2 0
— sieve	0 6	0 9
Parsnips, per bag	2 0	2 6
Potatos, per ton	80 0	115 0
— new, Kidney, per lb.	0 3	—
Rhubarb, Yorks., per doz.	1 6	2 6
Salad, small, punnets, per doz.	1 3	—
Savoys, tally	3 0	5 0
Seakale, per doz. punnets	15 0	18 0
Shallots, per doz.	0 2	—
Spinach, English, bushel	2 6	2 9
Tomatos, English, per doz. lb.	4 0	—
— Canary, deeps	3 0	4 0
Turnips, p. dozen	1 6	2 0
— bags	1 6	2 6
Watercress, per doz. bunches	0 3	0 6

REMARKS.—Crates of Cornish Broccoli fetch 5*s.* to 10*s.*; Cherbourg, per dozen, 1*s.* to 1*s.* 6*d.*; and St. Malo, per dozen, 1*s.* 6*d.* to 2*s.* 3*d.* Misleto, in crates of about 50 kilos, fetch 7*s.* to 10*s.*; Sweet Potatos, per cwt., 16*s.*; Grape-fruits, per case, 14*s.*; Chow-Chows, 4*s.* to 5*s.*; Californian Plums, Coe's Late Red, per case, sell for 8*s.* 6*d.*; Californian Pears, Easter Beurré, per case, 22*s.* 6*d.* Small common Apples are very bad trade.

POTATOS.

Various samples, 70*s.* to 90*s.* per ton; Dunbars, red soil, 105*s* to 110*s.* *John Bath, 32 & 34, Wellington Street, Covent Garden.*

CUT FLOWERS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Anemones, per dozen bunches	2 0	3 0
Arums, per dozen	4 0	5 0
Asparagus Fern, per bunch	1 0	2 6
Bouvardias, per dozen bunches	6 0	8 0
Camellias, per dozen	2 6	—
Carnations, per bunch	1 0	3 0
Chrysanthemum, various, per doz. bunches	4 0	24 0
Encharis, per dozen	2 0	3 0
Freesia, per doz. bunches	2 0	3 0
French Fern, per doz. bunches	0 4	0 6
Gardenias, per box	1 6	2 0
Lilium album, per dozen blooms	1 6	2 6
— Harrisii, per bunch	3 6	4 0
Lobelia, Red, per dozen bunches	4 0	6 0
Lily of the Valley, per dozen bunches	6 0	18 0
Maidenhair Fern, per dozen bunches	4 0	6 0
Mimosa, p. bunch	0 9	1 6
Narcissus, dozen bunches	2 0	3 0
Orchids (Cattleya) dozen blooms	9 0	12 0
Parma Violets	1 9	3 0
Pelargoniums, Scarlet, dozen bunches	4 0	6 0
Roman Hyacinths, dozen bunches	10 0	12 0
Roses, Mermet, p. bunch	2 0	4 0
— red, p. dozen bunches	6 0	8 0
— various, doz. bunches	12 0	24 0
Smilax, doz. trails	1 6	2 6
Tuberoses, per doz. blooms	0 3	0 4
Violets, per dozen bunches	1 6	2 0
White Lilac (Fr.)	4 0	4 6

PLANTS IN POTS, &C.—AVERAGE WHOLESALE PRICES.

	s.d.	s.d.
Adiantums, per dozen	4 0	8 0
Aralias, per doz.	4 0	8 0
Arbor Vitæ, per dozen	9 0	18 0
Aspidistras, per dozen	18 0	36 0
Aucubas, per doz.	4 0	8 0
Chrysanthemum, various	3 0	18 0
Crotons, per doz.	12 0	24 0
Cyclamen, p. doz.	12 0	18 0
Dracænas, var., per dozen	12 0	30 0
Evergreen, pr. dz.	3 0	18 0
Ericas, per dozen	9 0	12 0
Euonymus, vars., per dozen	4 0	6 0
Ferns in variety, per dozen	4 0	30 0
Ficus elastica, per dozen	9 0	24 0
Hyacinths, Roman	8 0	10 0
Lycopodiums, pr. dozen	4 0	5 0
Marguerites, per dozen	5 0	8 0
Palms, various, each	3 0	21 0
Primulas, p. doz.	4 0	6 0
Pteris tremula, per dozen	4 0	8 0
— Wimsetti, per dozen	4 0	8 0
— major, per dz.	4 0	8 0
Solanums, p. doz.	6 0	12 0

FRUITS AND VEGETABLES.

GLASGOW, *December* 10.—The following are the average of the prices during the past week:—Apples, American, Baldwin, 14*s.* to 18*s.* per barrel; do., Canadian, 15*s.* to 18*s.* do.; do., Kings, 20*s.* to 26*s.* do.; do., Greenings, 18*s.* do.; do., various high-class red, clear fruit, 15*s.* to 17*s.* do.; do., various high-class red, 14*s.* to 18*s.* do.; do., green, 16*s.* to 18*s.* do; Oranges, Valencia, ordinary, 420's, 8*s.* to 11*s.* per box; large, 420's, 12*s.* to 15*s.* do.; 714's, 8*s.* to 10*s.* do.; Lemons, 4*s.* to 5*s.* per box, and 7*s.* to 12*s.* per case; Grapes, English, 1*s.* to 2*s.* per lb.; do., Almeria, 12*s.* to 20*s* per barrel; do., home, 9*d.* to 2*s.* 6*d.* per lb.; Mushrooms, 1*s* 3*d* do.; Tomatos, Scotch, 4*d.* to 8*d.* per lb.; do., Guernsey, 4*d.* to 5*d.* do.; Onions, Valencia, 5*s.* 6*d.* to 7*s.* 6*d.* per cwt.

LIVERPOOL, *December* 10.—*Wholesale Vegetable Market.*—Potatos, per cwt.: Main Crop, 3*s.* 6*d* to 4*s.* 0*d*; Up-to-Date, 2*s.* 8*d.* to 3*s.* 0*d.*; Bruce, 2*s.* 10*d.* to 3*s.* 3*d.*; Turnips, 5*d.* to 7*d.* per dozen bunches; Swedes, 1*s.* 2*d.* to

1s. 3d. per cwt.; Carrots, 5d. to 7d. per dozen bunches, and 2s. 3d. to 3s. per cwt.; Onions, English, 4s. 6d. to 5s. 6d. do.; do., foreign, 2s. 9d. to 3s. 6d. per bag; Parsley, 4d. per dozen bunches; Cauliflowers, 1s. 9d. to 3s. per dozen; Cabbages, 6d to 1s. 2d. per dozen; Celery, 9d. to 1s. 6d. do. *St. Johns:* Potatos, 1s. per peck; Grapes, English, 1s. 6d. to 3s. 6d. per lb.; do., foreign, 4d. to 6d. do.; Pines, English, 5s. each; Apples, 2d. to 4d. per lb.; Tomatos, 2d. to 6d. do.; Cucumbers, 6d. each; Mushrooms 1s. 4d. per lb. *Birkenhead:* Potatos, 10d. to 1s. peck; Grapes, English, 1s. to 2s. 6d. per lb.; do., foreign, 6d. to 8d. do.; Mushrooms, 1s. to 1s. 4d. do.; Filberts, 8d. do.

SEEDS.

LONDON, *Dec.* 10.—Messrs. John Shaw & Sons, Seed Merchants, of Great Maze Pond, Borough, London, S.E., write that owing to the Cattle Show, this week's seed markets are being well attended. Business, however, has not been active, the customary Christmas calm having already set in; nevertheless, values all round exhibit remarkable firmness. With regard to Red Clover-seed, France, which appears to be practically the only country in the world with much seed to spare for export, is said to have already sold nearly all her surplus supply, and higher rates are now asked for the moderate quantity she has left. The samples offering from the other continental countries show very unsatisfactory quality, and are prohibitively dear. White Clover-seed has advanced abroad, but Alsyke is dull. Rather more attention is now being given to Trefoil. The trade for Ryegrasses is without fresh feature. Cocksfoot, Sanfoin, Timothy, and Lucerne, keep fully as dear. There is more enquiry for Winter Tares; Rye, meantime, is neglected. Canary-seed has made a further substantial advance; whilst full rates are demanded for Haricot Beans and Blue Peas. The Board of Trade returns give the imports into the United Kingdom of Clover and Grass-seeds for the past eleven months, as 278,351 cwts., value £611,720; as against 237,180 cwts., value £517,726 for the corresponding period of 1901.

CORN.

AVERAGE PRICES of British Corn (per imperial qr.), for the week ending Dec. 6, 1902, and for the corresponding period of 1901, together with the difference in the quotations. These figures are based on the Official Weekly Return:—

Description.	1901.	1902.	Difference.
	s. *d.*	*s.* *d.*	*s.* *d.*
Wheat	27 1	25 1	— 2 0
Barley	26 7	24 4	— 2 3
Oats	19 0	17 0	— 2 0

Answers to Correspondents.

*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

BOOKS: *O. L.* One of the best works in the English language is *Landscape Gardening in Japan*, by Josiah Conder, printed by the Hakubunsha, Ginza, Tokio; on sale by Sampson, Low, Marston & Co., Ltd., St. Dunstan's House, Fetter Lane, London.—*E. G. & Son. Manual of Coniferous Plants*, by Messrs. Veitch & Sons, Exotic Nursery, King's Road, Chelsea; and *Trees and Shrubs for English Gardens*, by A. Mongredien: John Murray, Albemarle Street, Piccadilly. *Potato Culture for the Million*, by H. W. Ward: published by Eyre & Spottiswoode, East Harding Street, London, E.C.—*J. M.* We know of no modern book on the subject, although Mr. Upcott Gill, 170, Strand (*Bazaar* office), may publish one.

BULB MITES: *W. H. W. W.* Spontaneous birth of the mites within a bulb cannot occur, and we may account for infestation by contact with infested bulbs or soil. So far as we know, there is no cure, although it is said that if the bulbs be placed in a paper bag containing flowers-of-sulphur, shaken up with the latter, and allowed to remain in the bag for a week or longer, the mites will be killed.

CHRYSANTHEMUM MADAME CARNOT: *G. W.* What was stated in our issue for Nov. 22, in reference to the price certain blooms realised in the market was quite correct; but it must be remembered that the blooms spoken of were grown by the best cultivator of this variety in the country. The statement was not a general one.

FLOORING FOR A CONSERVATORY: *A. H. L.* We should not recommend asphalt as a material for a floor in a house in which plants are to be cultivated; cement over a 6-inch bed of sound concrete would be preferable, and quite as impervious to water.

GRENADILLA FROM SOUTH AFRICA: *P. L. H.* Let them be placed in pots that will conveniently hold the roots, afford water to settle the soil, and place in a moderately warm house. There should be no attempt to hurry the plants into growth, nor should more water be applied than will prevent shrivelling of the bark. When growth begins in the spring, more heat and moisture will be necessary. The plants should be secured to a sunny part of the wall of the warm house, the bine kept thin, and fully exposed to the sun, and not allowed to get into a tangled state. The fruits appear in the course of the summer, but your plants may not fruit before 1904.

HERBACEOUS CALCEOLARIA: *J. P.* The plant sent is much overpotted, and in soil that is very unsuitable as regards texture and quality, and it (the plant) is suffering from excess of moisture in the soil; hence, the yellowish appearance of the leaves. You should obtain rich pasture-loam, which break up finely, but do not sift; and with this mix dried cow-dung or stable-dung, eschewing that which has formed part of a Mushroom-bed, and which is decayed. To this add 1 peck of silver-sand per wheelbarrow load, and thoroughly mix altogether. Turn out the plants and repot them, affording a comparatively small shift; when well rooted, shift into the pots in which they will flower. Grow the plants very cool on a damp bottom, say, of Derbyshire spar or fine coal-ashes. Do not stint them of air when it can be safely afforded; apply only just as much fire-heat as will keep out frost. Apply water with discretion, and no manure-water till the pots are filling with roots. Fumigate once a week for safety's sake.

JAPANESE SUMMER-HOUSES: *O. L.* Some horticultural builders make the erection of summer-houses an adjunct to their ordinary business. Consult the advertisements in our columns every week.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*Claremont.* Oncidium prætextum, a close ally of O. crispum, but easily distinguished by its smaller flowers, the segments of which invariably have a more or less clearly defined narrow yellow margin. It has also been called O. Gravesianum.—*Amateur.* 1, Epidendrum umbellatum; 2, E. lanipes; its downy ovary gives a ready means of identification.—*Clarke.* The flower is of true Cypripedium bellatulum, and not a hybrid.—*M. P.* The small bulb sent seems to be of Eucharis subedentata. Send when in flower. Repot it and give it more heat, and it will then probably grow stronger and bloom.—*R. N. H.* Cœlogyne fuscescens, sometimes met with in gardens as Cœlogyne assamica.—*Poppy.* 1, next week; 2, Adiantum cardiochlæna; 3, Ornithogalum aureum; 4, Thujopsis nootkaensis; 5, Pteris tremula; 6, Pteris longifolia; 7, Blechnum occidentale; 8, the Cape form of our Adiantum capillus-veneris, known in some gardens as O'Brieni.—*J. M.* A golden variety of Thuya orientalis (Arbor-vitæ).—*Clem.* A species of Hedychium: without seeing the flower we cannot be sure as to the species.—*W. E. H. and G. P.* Cotoneaster frigida.

ORCHID KILLED: *W. R. H.* The plant probably got a chill by removal from the house in which it had been grown.

SITUATIONS IN ENGLISH TROPICAL OR SUB-TROPICAL COLONIES: *G. D.* We should recommend you to put in an advertisement in the *Tropical Agriculturist*, issued monthly, published by A. M. & J. Ferguson, Colombo, Ceylon; *Natal Mercantile Advertiser*, Durban; *Indian Agriculturist*, and *The Planter*, both published at Calcutta; *Commercial Advertiser*, Rangoon, Burmah; *Queenslander*, Brisbane. To your second question, inquire of Willings, 125, Strand, London, W.C.

STRAWBERRY-PLANTS SENT TO SYDNEY, N.S.W.: *W. B.* Send at the present season young plants, established in pots, in a stiffish loamy soil. These should be packed firmly in Wardian cases, in a loamy or clayey soil free from manure, and which would not settle unduly, some contrivance being adopted which would prevent the plants falling out of the pots, or the pots out of the bed of soil. The varieties might consist of Royal Sovereign, British Queen, Early Laxton, Auguste Boisselet, Frogmore Late Pine, and Keen's Seedling.

VINE TRELLISES CROSSING THE VINERY FROM BACK TO FRONT: *R. M.* If the Vines could be so trained on the extension long-rod system, or as single rods with short spur running diagonally towards the back wall, and the laterals kept well in hand, and not allowed to get crowded, success might attend your efforts. The chief danger to be guarded against is the immaturity of the wood owing to lack of direct sunshine, which may be mitigated in its effects by having laterals fairly wide apart, and checking the extension of sub-laterals.

VIOLAS: *E. Bland.* Please send some blooms, so that we may inspect and admire your astonishing find.

WEEDS IN PAVED COURT: *J. F. S.* Boiling water, in which a pound or two of salt is dissolved, will kill the weeds, or salt alone will do it. The horticultural sundriesmen and florists sell weed-killer, but it should not be used where poultry and small domestic animals have access to the court.

WEIGHT OF TOMATO CROPS: *W. M.* Ten to twelve lbs. of fruit per plant under pot-culture or on the one-stemmed method out-of-doors, is a fair weight; but on the extension method, training the plants fanwise, as is sometimes done, a much greater weight may be gathered. Much will depend on the variety, the set of fruits and cultural details, distance of the plants apart, freedom from disease, &c.

COMMUNICATIONS RECEIVED.—H. E.—G. P.—P. B.—M. B.—M. Pardé—G. G. W. (photograph with thanks)—Messrs. Sander & Co. (photograph with thanks)—F. W. B.—T. H. C.—E. M.—Prof. Fisher—T. W. H.—Dr. Debono, Malta—W. G. S.—M. E. M.—J. G.—G. M.—Jas. Dawes.—Novice.—F. W. B.—W. A. C.—E. J.—C. T. D.—W. F.—S. C.—F. C.—Expert.—A. W. L.—A. M. S.—G. J.—C. B. S.—H. W. (some of these are decayed)—J. B.—Inquirer.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE."

IMPORTANT TO ADVERTISERS. — *The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper, more than*

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS *at home, that it has a specially large* FOREIGN AND COLONIAL CIRCULATION, *and that it is preserved for reference in all the principal Libraries.*

THE
Gardeners' Chronicle

No. 834.—SATURDAY, DEC. 20, 1902.

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SELECTION *V.* HYBRIDISM.*

HYBRIDS are of two descriptions: those produced naturally or spontaneously in the wilds, and those raised artificially in the garden; but there is no real distinction between them. We are told that a hybrid is the offspring of two species, one or both of which at times may be either pollen or seed-parent. But the day of a rigid belief in "pure species" of plants is past, and to say any plant is a species, simply means the expression of one's own or somebody else's judgment or opinion. A species is merely some botanist's decision, and not Nature's decision; for how can Nature be decided, seeing that evolution is continually going on? A species often includes an enormous number of individual plants varying more or less amongst themselves, and which come more or less true from seed. A species is in fact a more or less variable quantity, and its capacity for variation is absolutely unknown, except as it is experimented upon in the garden or elsewhere. Our ignorance of the natural history of plants is profound. Two so-called species grow in the same soil and situation, and belong to the same natural group or order, and yet while one is a useful food plant, the other is a virulent poison to men or other animals.

Again, two plants called species may grow on the Andes or the Himalayas side by side, and yet, when brought to American or European gardens, the one may be quite hardy, while the other dies unless sheltered in an artificial temperature. Why plants thus vary in their secretions or products, and in hardihood, no one knows; that they do so is a fact patent to the most ordinary observer, and these problems await solution from the biologist of the future.

Again, two related species will when hybridised sometimes produce fertile offspring, and in other cases barren ones. Sometimes species A will fertilise species B, but species B will not fertilise species A, but why this difference no one knows. In other cases two or more species will be reciprocally fertile, but why this is so neither physicist nor physiologist can say, any more than they can tell us why some plants secrete or make sugar or starch, and others furnish oil, nutritious food, healing medicines, or deadly poisons. These so far are the secrets of Nature's great laboratory.

But let us come to the hybrids. The whole history of hybrids is obscure, and in many cases most unreliable. In the case of so-called spontaneous or wild hybrids, what has happened is this: the arm-chair botanist, knowing nothing of the circumstances of their origin or environment, has simply named and described them as pure species. Now and then, as in the case of some Orchids, a guess as to their parentage has been made by collectors, and even by botanists, and we have instances where Orchids and other wild hybrids have been made over again by fertilising the parent species in our hothouses here at home. Nevertheless there are doubtless thousands of wild hybrids lying obscured under Latin specific names in our books and herbaria throughout Europe and America to-day.

As to garden hybrids, in the beginning of the past century it was thought impious to molest Nature; and the early botanists and students of plant hybridism were pretty much in the position of the vivisectionists who rightly or wrongly experiment (under anæsthetics) on living animals to-day. In a word, they worked in secret, and scarcely wished or dared to tell the truth. It is curious to observe that, while physical union, such as imping or inoculation, budding and grafting, were looked upon as quite respectable and clever, the physiological unions by cross-pollination were universally tabooed—in Northern Europe more especially. I say in Northern Europe, because in South Europe, North Africa, and the East, the necessity for fertilising the Fig-tree and the dioecious Date-Palm artificially had been carried out from very early times.

In English gardens, hybrids have been reared designedly for a period of well nigh two hundred years. The first of garden hybrids recorded in England was Fairchild's Mule Pink,* said to have been raised at Hoxton, near London, before 1719, between Dianthus caryophyllus and D. barbatus; that is to say, between the Carnation and the Sweet William. This and many other early hybrids were called "mules," from a belief that, like the horse and ass hybrid so called, all vegetable hybrids were likewise sterile. The early history of garden hybrids has been obscured by the reserve of the early experimenters, and the jealousy they felt of each other; also by a more or less superstitious fear of revealing or recording what at the time was regarded as an irreligious or sacrilegious interference with the working of Nature. There were also later on, trade jealousies, and hybrids were either said to have come from abroad, whence their parents had come before them, or their origin was disguised and concealed under specific Latin names. One remarkable instance of these latter tactics being adopted occurred when Messrs. Rollison of Tooting, and other growers of Cape Heaths, at a time when they were nearly as popular as Orchids and Begonias are to-day, reared numerous hybrids and seedlings, all being credited to the Cape of Good Hope, and duly christened with Latin names.

Another potent source of error as to garden hybrids is due to the fact that fertilisation having presumably been effected by wind or insects, the seedlings that varied were assumed to have been hybrids. In a word, the seeming intermediates were assigned the most probable or obvious parentage without any proof of their real origin.

This brings me to the point of this paper, viz., that the parentage of an enormous quantity of hybrids depends on mere "guesses at truth," and not on any accurate records whatever. It is difficult to estimate the importance of this practice as a source of error, because intermediates are often produced in gardens by ordinary seminal variation, and without any hybridising co-operation whatever.

We are apt to attribute too much to hybridism as an influence in producing variations, and even in the blending of characters amongst cultivated plants.

Before we can be sure of what hybridism effects, we must know exactly to what extent the parent species themselves can vary when self-pollinated or when self-fertilised. It is evident that some species which so far as we know have never been hybridised, can and do vary infinitely as cultivated. In a word, cultivation and the intercrossing of varieties yields results at times almost even if not quite as great as does hybridism between species. The Chinese Primula, Cyclamen latifolium, the Gloxinia or Sinningia, many cereals and cultivated vegetables, which so far as we know have never been hybridised, yet vary as much as those plants which have been so originated. We have only to look at the immense variations in Apples, Pears, and other domestic fruits in order to recognise the great central fact that cultivation in the crossing of varieties and human selection are quite as potent, or even more so, than hybridism alone. Of course, hybridism as confined to so-called species, and the cross-breeding of varieties differs only in degree, both being sexual and physiological processes. Many of our type species, even as wild plants, are extremely variable from seed, whilst many seminal garden varieties come practically true from seed. As a matter of fact, the distinction between species and varieties is an arbitrary one, but it is at present a convenience to keep up the nominal distinction. Some day it will be recognised universally that garden species, artificially reared, are quite as distinct, and often a great deal more useful, than the native or wild ones.

* A Paper contributed to the Plant-Breeding Conference at New York.

* See *Gardeners' Chronicle*, July 26, 1890, p. 103.

Hybridism often gives us a splendid starting-place—a spring-board, or a new field of variation, as it were; but that field must be further improved by cross-breeding and selection, or the highest and best of practical results are lost, or in any case not actually realised.

We must clearly grasp the fact that the three great factors in the making of plant-products more useful or suitable to our daily wants are cultivation, the cross-breeding of varieties, and a careful selection of the most suitable or desirable seedling kinds. Even cultivation and selection alone from wild plants, as in the Carrot and Parsnip of Vilmorin's and Buckland's experiments, will work wonderful transformations in only a few generations.

The fourth factor, viz., hybridism, is potent in the origination of new races, as illustrated in the tuberous-rooted Begonias, the large-flowered Cannas, the Gladiolus, Marliac's coloured Water-Lilies, and many other things; but the initial gain still depends on the other three factors for its full development.

I doubt very much whether the newly discovered "Mendel's law" will be of much practical service to the ordinary hybridist, or whether it will lead to a more precise and exact system of working amongst hybridists in the future.

In conclusion, I may put forth the following suggestions to those who live in America, fertile as it is in experimental stations and gardens of all kinds. As a rule, I know the best practical results in hybridising and cross-breeding have been obtained by going direct to the point, but the losses have also been very great under this plan. The scientific way is to do one thing at a time, and work from the simple to the complex. In this way I would suggest that ten or a dozen suitable species should be selected for experimentation. One plot of individuals should be well cultivated and self-fertilised, their seeds being again sown so as to get at the simple results of self-pollination, then good cultivation, and then by selection alone. The plants in plot 2 under the same condition should be carefully hybridised, reciprocally if possible, and the seeds of these should be again sown and well grown. Selection might be made in both cases, the object in view being to decide whether the simple selection of self-fertilised seedlings, does not play a larger, and hybridisation alone a smaller part in the evolution of garden plants than is at present believed to be the case. The experiments could then be continued with the same material, so as to determine the importance of the part played by the cross breeding of the selected varieties in both cases. As it is, we are in "going direct," working with unknown factors. We must, first of all, find out how our parent species behave under: 1, culture; 2, selection; 3, cross breeding; and 4, hybridism, instead of hybridising first and trusting to chance for our results. When we see the wonderful varietal results attained amongst live stock, cattle, and poultry, as well as amongst fruits, vegetables, and flowers by cross-fertilisation and selection, we may realise that after all hybridism is not everything in the evolution of the most useful animals and plants of both the farm and the garden.

F. W. Burbidge.

NEW OR NOTEWORTHY PLANTS.

A NEW CHINESE MUSA.

MUSA WILSONI (W. J. TUTCHER, *n. sp.**).

WHEN Mr. E. H. Wilson, the indefatigable collector for Messrs. J. H. Veitch & Sons, returned from his trip to Yunnan in 1899, he brought with him a few seeds of a Musa, which he informed me was cultivated by the natives of that province, and known by them as the "Elephant's Head" Banana (fig. 151). They cultivated it for the inner portion of the trunk, which was used as food. The seeds were sown on December 6, 1899, and three of them germinated. One of the young plants died, but the other two survived, and these were growing in 8-inch pots in the spring of 1901, when they were planted out. By the end of the summer they had obtained a height of 6 to 7 feet. During the winter of 1901-02 the leaves died down to the trunk, but in the spring of this year new ones were pushed forth, and both plants flowered in June, the first flowers opening on the 25th of that month. The plants were then from 10 to 12 feet high, with about a dozen leaves each. The fruits, which are of a golden yellow colour, began to ripen on October 18.

It is a highly ornamental species, with broad, arching leaves, 10 to 12 feet long. The trunk is conical, 5 feet long below the lowest leaves. The fruits are club-shaped, 3½ to 4½ inches long, and contain on an average twenty seeds, which are immersed in a sweet pulp very similar in taste to that of the ordinary Banana. One fruit I examined contained eleven seeds only, but another had twenty-five; and taking an average of a large number of fruits, it worked out as stated above. All the bracts are persistent, but only the lower ones contain fertile flowers. The male flowers continue to open until the fruits are ripe, and as all the bracts are then withered and brown, it can easily be understood why the natives of Yunnan call the plant the Elephant's Head Banana. The resemblance is certainly very striking. It appears to be closely allied to Musa glauca, Roxb., but differs from that species in having a much shorter trunk, much longer petiole and leaves, flowers twice as large, and wrinkled seeds. I have named it in honour of its discoverer. *W. J. Tutcher, Botanic Gardens, Hong Kong.*

* *Musa Wilsoni.*—Not stoloniferous. Trunk conical, 5 feet from the base to lowest leaves, 15 to 18 inches diameter at the base, 7 to 8 inches diameter below the lowest leaves. Height of plant 10 to 12 feet. Petiole deeply channelled; free petiole 2 feet. Leaves, including glaucous free petiole, 10 to 12 feet long, 2 to 2⅔ feet broad, green, apex acute, base truncate or slightly cordate. Panicle drooping, 3 feet long, 15 inches diameter at the base, but only 4 to 5 inches at the apex. Bracts green, persistent, lower 1 foot long, lanceolate, upper much shorter, ovate. Flowers fifteen to twenty, in two rows, white. Calyx three-lobed, lobes free or loosely coherent, nearly 2 inches long. Petal short, tricuspidate, with a large linear central cusp. Ovary three or four-sided by pressure, 2 inches long. Fruit pulpy, trigonally clavate, 3½ to 4½ inches long, nearly 1½ inch diameter at apex, yellow. Seeds about twenty, black, slightly wrinkled, angled by pressure, ⅜ to ½ inch in diameter; hilum rather depressed, cavity large.

GRAFTING.

THE pruning season for Apples, Pears, and Plums, naturally leads us to the selection of proper scions for grafting in the coming spring. Upwards of sixty years' experience has taken me through the "clay system" into the "grafting wax system," and I am happy to say has taken me out of both of them.

The preliminary mixing of the "clay," and shaping it to the graft in the month of March, was not a pleasing experience, and the time taken up in subsequently looking for and making good all cracks and breakages in the clay, was considerable, and I hailed the advent of the "grafting wax" with great satisfaction.

But the "grafting wax" system, in practice, I found had also its very serious drawbacks. It wasted too much time to complete each individual graft, the stickiness of the wax frequently necessitating the wetting and cleansing of hands and knife, or brush, or all of these; and I believe in the rapid completion of a graft as adding greatly to its chance of success.

Two seasons since the idea struck me, why should it be necessary to use either "clay" or "grafting wax?" If in budding Roses a careful binding of raffia (or bass) was sufficient, why should it not be sufficient for a scion of Apple, Pear, or Plum, which has in it a much greater amount of vitality than a Rosebud? I tried the experiment.

I had in my garden far too much Plum-sucker growth to please me, but instead of destroying this growth, I selected the strongest suckers in each bunch, which were sufficiently matured, without at the time disturbing the roots at all. A sucker of from two to three years' growth would carry a scion in size about half as thick again as a lead pencil—a larger scion grown in my soil would be dangerously close to rank wood and wide apart buds, which I avoid.

As my experiment was quite unpremeditated, I could only seek for my scions amongst the autumn cuttings lying under each tree, as these had not all been cleared away, and fourteen out of twenty grafts took and flourished. But the winter of 1900–01 was a very mild one.

I tried the same experiment last spring under exactly similar conditions, except with the risk to the scions of more severe frosts, and the winter of 1901–02 proved to be a very exceptional one. Frosts were frequent, and were very severe, but were of short duration, not one of them lasting longer than for three consecutive nights. My register showed one of 22°, one of 20°, one of 17°, two of 16°, and one of 15°, &c.; but notwithstanding the much greater intensity of cold, I succeeded in getting eleven out of sixteen grafts to live, and these I have now in my garden.

I made this second experiment to corroborate my first; but because I have met with a certain amount of success, I by no means advocate the lengthened exposure of scions above-ground, for probably a prolonged frost of any severity would destroy all vitality in them.

Although under ordinary conditions my percentage of success was very low, it must be borne in mind that I had to contend with the difficulty of being encumbered by the very close growth of the bunches of suckers, and consequently the great risk of displacement of already-completed grafts, as well as the possible damage from the above-ground exposure of the scions; but I think I have done well enough to be justified in calling the attention of my brother amateur gardeners to this new departure, and these can avail themselves of the advantage of properly preparing their stocks and scions for working.

If I should be asked why I did not wait for a better average to justify my suggestion, I must plead that I have just entered upon my seventy-fourth year.

I have consulted our leading professional gardener, who has charge of what in its day was the greatest of our botanical show gardens, and is now used as an experimental garden, and he tells me my idea is quite new to him, and he gives it his decided approval. I venture, therefore, to lay the result of my experience before your readers. Where my idea is adopted, I am sure it will be found to lead to an immense saving of time, leaving out of consideration all the discomfort as well as trouble of procuring the necessary materials for carrying out the old process.

I should give preference to stocks and scions of equal size, so that the top and bottom and sides should all fit exactly; but when this cannot be arranged, the very careful binding of the raffia, more especially at the upper end of the union, when not a perfect fit, so as to exclude all air and wet, seems to guarantee security. I have examples of both conditions of union, fitting and not fitting at all points, now growing side by side in my garden, with curiously enough the proportions of six to five in favour of non-fitting unions.

As I am addressing myself to amateurs, I trust this elaborate detail will be pardoned. *A. W. Le Maitre.*

CULTURAL MEMORANDA.

LATE GOOSEBERRIES.

In order to obtain very late fruits I planted several varieties against a north aspect, and trained them gridiron fashion to the wall—a kind of novelty to many, more especially when laden with fruit late in the autumn. Whinham's Industry was amongst them, and it carried a large quantity of berries the second year after planting; Dan's Mistake was another, that keeps late and does well on a north wall; Leviathan is a good yellow, a tall grower, and a first-rate green-fruited variety. By planting Gooseberries on a wall, the fruits can be kept drier than on bushes, and in order to keep them late this is very essential. Tiffany stretched over them will protect the fruits from wasps and flies; and as an extra protection against the rain, frame-lights may be allowed to lean against the wall. Whilst growth is being made, the lateral growths should be kept pruned in order to form fruit-spurs and to admit light, nailing to the growths needed to cover the wall. At that season an occasional washing with the engine favours growth, and keeps the plants free from insect pests. Liquid-manure is beneficial, and a good application of water, as but little rain comes from the north. Red-spider is one of the worst enemies of the Gooseberry in dry positions, and efforts should be made to extirpate the pests before ripening begins. *W. A. Cook, Erlestoke Park.*

BEGONIA GLOIRE DE LORRAINE.

This is a most effective plant for filling vases, decorating the conservatory or the dinner-table, and may be struck from cuttings taken off at this season about 3 inches in length, inserting them round the rims of 3-inch cutting-pots, filled with light loam and leaf-mould in equal parts, with a good dash of sand added. They will soon root if placed anywhere in heat, and kept close at a minimum temperature of 60°. The cuttings having been watered-in will not need any more water, or at any rate not more than once before roots form. The rooted cuttings should be potted off singly into small 60's in the same kind of compost as that in which they were struck, afforded water, and returned to heat in a position near to the roof, so as to ensure a sturdy, short-jointed growth. As soon as they make fresh growth, pinch out the points, and repeat this operation until the plants have attained to the desired size and shape, shifting the plants into large 60's, and again into 48's and 32's before the roots become matted. During the summer and early autumn months the plants do very well in a cold frame, with a free circulation of fresh air being admitted day and night, to ensure consolidated growth, as well as to retard the flowering period to the proper time. *H. W. W.*

PLANT PORTRAITS.

PSORALEA SUBACAULIS.—*Meehans' Monthly*, November.
CATTLEYA BRYMERIANA.—Rchb. f., in *Gard. Chron.*, 1883, t. 492; Kränzlin, in *Garten Flora*, t. 1505.
PEAR MADAME CHARLES GEORGE.—*Bulletin d'Arboriculture, &c*, December.

NOTICES OF BOOKS.

FORMAL GARDENS IN ENGLAND AND SCOTLAND, by H. Inigo Triggs, illustrated by seventy plates from drawings by the author, and fifty-three reproduced from photographs by Charles Latham. (London: B. T. Batsford, 94, High Holborn.)

THE third and final instalment of this superb book is now published. We have on previous occasions called attention to it, and now that sundry details, indexes, lists of plates, and so forth, have been added, the work has become very valuable. The book has been mainly compiled for the use of architects and garden-architects, so that the details relating to landscape gardening pure and simple, or to the cultivation of plants, are necessarily scanty. A brief history of each mansion and garden is given, together with information concerning the salient features of the garden, as seen from an architectural and artistic point of view. In course of time so many changes are made in gardens, often for the worse, that a record of this character becomes specially valuable. The illustrations are mostly admirable, and bring out the leading features excellently. Of course, there are and always will be differences of opinion as to the superior merits of this or that style, and the controversy between the "architect" and the "landscape-gardener" is not likely to be brought to an end till the combatants cease to compare things that are not comparable, and agree to compare like with like, and specially to recognise as paramount the beauty of appropriateness. Some of the terrace-gardens and their appurtenances, as here figured, are beautiful and appropriate where they are placed. They would be ridiculous in other surroundings. From this point of view a little charity may even be extended to the topiary art, a childish and monstrous distortion in some cases, a quaint addition in others; a thing to be religiously preserved where it has existed from time immemorial, a practice strongly to be deprecated in more modern gardens. Very beautiful are some of the vases figured, and the leaden statues will, we expect, excite no little attention. Plans for mazes, parterres, and knots, will be valuable to those called on to construct similar devices and the illustrations of garden houses, gates, dovecots, and other accessories, will furnish many a valuable hint. Altogether the volume forms a most important and attractive addition to the literature and artistic illustration of the garden.

FIG. 151.—THE ELEPHANT'S-HEAD BANANA: MUSA WILSONI AND FRUIT. (SEE P. 450.)

LES DROGUES SIMPLES D'ORIGINE VÉGÉTALE. Par G. Planchon and E. Collin. Tome II., with 753 figures, 8vo, pp. 988. Paris: Doin (Williams & Norgate).

THIS is the second volume of what is a veritable encyclopædia of information relating to the drugs

of vegetable origin and to the plants producing them. Thus under the head of Umbelliferæ we have first a short general description of the order, and then a detailed account of the conformation and internal structure of the leaves, stems, roots, and seed-vessels of those species made use of by druggists for medicinal or economic purposes. Although primarily intended for the use of pharmacists, it may readily be understood that it will prove valuable to medical men, botanists, and not least to gardeners and seedsmen. We find, for instance, descriptions and figures of the leaves, flowers, and seed-vessels of Hemlock, Parsley, Chervil, Sumbul, Carrot, Angelica, Celery, Fennel, Coriander, Cumin, Aniseed, Carraway, and many other plants belonging to this family. The details given and the excellent illustrations serve at once as useful means of recognising the several plants, of detecting fraudulent or accidental admixtures, and of and of discovering the causes of poisoning.

The book should find a place in all reference libraries in which the requirements of students or cultivators of medicinal or economic plants are considered.

PROFESSOR BOULGER'S "MANUAL OF WOOD."*

PROFESSOR BOULGER'S *Manual of Wood* is about the same size as Marshall Ward's 1894 edition of Laslett's *Timber and Timber Trees;* it is a distinct improvement on the latter, the arrangement of the matter being excellent, and the printing very clear, while the standardisation of the commercial names of the woods, by adopting one synonym, and referring to it all the other synonyms which are given in the alphabetical list, is very useful. The accenting of the Latin scientific names of the trees should also ensure their correct pronunciation. The earlier plates in the body of the work, chiefly taken from originals by German botanists, clearly illustrate the general structure of timber. A number of new photographs of magnified sections of wood, prepared by Mr. Mackenzie, of Morton Hall, Midlothian, are well executed, though it is a pity that the exact magnifying power employed is not given in each case.

The photographs of slightly magnified ($3\frac{1}{2} \times 1$) sections of wood are taken from a prize essay written by Mr. Deane, assistant curator of the Warrington Museum, for the English Arboricultural Society; but the author did not know that these were prepared by Mr. Deane when he was botanical laboratory assistant at the Royal Indian Engineering College, Coopers Hill. They form part of a series of similar photographs prepared by Mr. Barber, formerly Instructor in Botany at the College, and now Director of the Botanical Survey of Southern India. Mr. Barber taught Mr. Deane how to make these photographs, and the originals belong to the College. The sixteen sections given are useful as illustrations, but it is a pity that the complete collection of photographs of English wood-sections in the College were not obtained.

Part I. of the *Manual* treats of wood in general, and Chapter I., on the structure of wood, is well written. The statement that Dicotyledons are generally of slower growth than Conifers is, however, too general, when the woods of the whole world are concerned. Species of Eucalyptus and Casuarina grow faster than any coniferous trees; and many tropical trees, such as Altingia excelsa, Bombax malabaricum, Cedrela Toona, Mahogany, and planted Teak, grow faster than any Conifers. Even among our European trees, Birch, Alder, Ash, and Sycamore, more than hold their own with Conifers for the first thirty years, while the rapid growth of Poplars is well known; and Beech beats the Spruce and Silver-fir up to the age of seventy or eighty years, and after about ninety years eventually outgrows Scotch Pine.

Chapter II., on the recognition and classification of wood, is good; but when Chestnut is ranked after Poplar and Linden as a softwood, it should be noted that this refers to Horse-Chestnut, and not to Sweet Chestnut, which is a hardwood, while even Horse-Chestnut is harder than Poplar and Lime. It is twice stated (pp. 44 and 204), that violin-wood, *Bois de resonnance,* is from Silver-fir, the fact being that it is from slowly grown mountain Spruce. In the analytical table for distinguishing woods, founded on one by Marshall Ward in *Timber and its Diseases,* about 15 genera of Conifers, 25 genera, and 50 species, of broad-leaved woods are given. This table might have been improved by a reference to Mathieus' classic work, *La Flore Forestière.* A satisfactory classification of woods can be made only by arranging them in botanical orders, and then preparing a separate analytical table for each order, from which a general table might afterwards be compiled.

In Chapter III., on the defects of wood, the account of cup-shake is incomplete, though it is probable that no satisfactory account of this defect has yet been written. It is stated that in some trees injuries to the cortex may be set up by the sun, but the Beech is excluded from such source of injury, although bark-scorching of exposed Beech is very common. Burrs, too, are due to dormant and not to adventitious buds, as stated in the *Manual.*

Chapter IV. on selection, seasoning, and durability of wood is short, and though the electric method of seasoning wood is explained, no opinion is expressed as to its value. Costly works to test this method have been established at Woolwich, but we have not yet heard of any practical success having been obtained. Nothing is said about Haskenising or vulcanising wood, a process employed by some American and English railways, and which has a regular agency in London.

Chapter V. gives a sketch of the uses of woods: it omits Elm in carriage-building, and states that Ash and Eucalyptus are chiefly used for spokes, although these are usually made of Oak or Robinia in England. Red-deal (Pinus sylvestris) is also not referred to as the wood chiefly used for railway-sleepers in Great Britain and the Cape Colony, and also to a considerable extent in India. Injected Beech sleepers are also extensively used in France, though this is not mentioned, nor is the use of Eucalyptus for this purpose in Australia; while the Cape Colony has just granted £100,000 for plantations of Eucalyptus to oust Scandinavian red-deal for railway-sleepers there.

Chapter VI., on our supplies of timber, would have been improved if Dr. Schlich's paper on the "World's Timber Supply," read before the Society of Arts in March, 1901, had been consulted. It would then have been seen that the quoted saying of a German government forester, who was sent in 1885 to study the timber resources of the United States: — "In fifty years you will have to import your timber, and as you will probably prefer American kinds, we shall begin to grow them now, so as to be ready to send them to you at the proper time," was an empty boast, as Germany has no surplus wood to spare. The German Empire during the last five years of last century, imported annually about £15,000,000 worth of timber, after deducting the value of her exports, in spite of her large area of well-managed forests. How, therefore, can Mr. Boulger state that timber is the chief export of the country? The statement that Saxony is cutting less than it might do, is erroneous, for the Saxon forests are splendidly managed, and the Saxons cut no more and no less annually than the volume of the annual production of their forests. The forest area of Hesse Darmstadt is one-third, and not three-quarters of its area, as stated. Beech is the chief tree of Hungary, constituting 75 per cent. of the woods, though we read that Conifers are the chief species in Austro-Hungary. The Oak that comes from Trieste is chiefly Bosnian; and if Italy still exports any Oak, its home wood supplies are quite inadequate, the net annual imports being valued at £1,000,000. The exports of wood from India are insignificant in quantity; most of them come to Great Britain, and are only 1-200th of our annual imports of timber. By an oversight on p. 115, Pynkado is named Afzelia palembanica, though elsewhere it is correctly named Xylia dolabriformis.

The above-mentioned facts strengthen Mr. Boulger's assertion, that "if Colbert could prophecy that France will perish for want of wood," the danger is more serious in our own time, and in many lands besides France.

Chapter VII., on testing wood, is good; and so is Part II., giving an alphabetical list and a short account of the 750 woods ordinarily used in commerce, although, as the author says, there are undoubtedly several thousand kinds used in various parts of the world.

From the above remarks, it is clear that Mr. Boulger has produced a very useful work; and although it cannot be considered as a completely authoritative account of wood, it will be easy to correct its defects in a new edition. In a review of this book that recently appeared in the *Timber Trades Journal,* it is stated that the information required by the timber-merchant never corresponds to that supplied by the scientist, and that the former is more interested in the comparative qualities of the same species of timber than in distinguishing one species from another. Quoting from this article—

> "The question of the method of preparation of the wood, the particular brand, the way the timber is manufactured for the market, the deterioration of some brands owing to the exhaustion of the forest areas accessible to the place of shipment, and the appearance of others, the cost of freightage, &c., &c., all these matters interest the timber-merchant far more than the varying divergencies between the 750 kinds of trees referred to in the present volume."

There are, however, disputes in the trade as regards the identity of some kinds of timber, that find their way into the Law Courts, and such disputes would be less frequent were Mr. Boulger's book to be consulted by timber merchants. An easily accessible wood-museum is absolutely required in London, under a curator, who is equally skilled in the scientific and commercial aspects of the question; and considering that we annually import about £25,000,000 worth of wood and wooden goods, the funds for such a museum should be forthcoming. *W. R. Fisher.*

* *Wood: a Manual of the Natural History and Industrial Applications of the Timbers of Commerce.* By G. S. Boulger, Professor of Botany and Lecturer on Forestry at the City of London College. (London: Edward Arnold, 1902.)

SOUTH AFRICA.

THE KAROO.

ON July 28, under the protection of Mr. J. H. Chalwin, Municipal Gardens, Cape Town, I had the opportunity of spending a few days in the Karoo, an extensive area in Cape Colony, extending some 1000 miles, covered with sand, and an aromatic scrub which supplies a scanty feed for a few mules, donkeys, goats, and sheep; these sheep, when fattened in good pasture, are said to be the finest mutton of Cape Colony, and much prized. The rainfall is about 4 inches per annum. After a shower, the desert is transformed into a smiling landscape, the grass growing with such rapidity, that, as they say in Australia, "you can hear it whistling."

To botanists in search of a dry flora, I can recommend the Karoo; and the geologist in

search of unique specimens will find them there to his heart's content—the strata, in many and diversified forms, confront one all over this wonderful Sahara. I record a few of the species of plants Mr. Chalwin collected, and we by no means collected specimens of all we saw. One remarkable plant you can set on fire with a match, and it will continue burning until entirely consumed; it is known as the Candle-plant, and may be used as a torch.

Cotyledon ventricosa, C. orbiculata, C. tuberculosa, and many other species. Anacampseros arachnoides. Crassula lycopodioides, C. ericoides, C. pyramidalis, C. columnaris, C. perfossa, C. arborescens, C. barbata, C. turrita, C. orbicularis, and many other species; Euphorbia very many species. Mesembryanthemum minimum, calamiforme, grandiflorum, and a very large number of other species. Apicra, four kinds; Pelargoniums, many species; Stapelias, several species and varieties; Davallia, Huernia, &c.; and Gymnogrammas, in most unlikely places. One species of Lachenalia was found growing wedged in the crevices of the rocks. Mr. Chalwin did not recognise it, and expected it might prove new.

It would be a wise thing on the part of a collector to take sacks and pack-horses, as some of the plants are ugly things to handle, and not very nice things to carry. Mr. William Faulkeners, of Pittsburg, Pa., U.S.A., expressed a great desire to get some of the round Cacti of Colorado, and wishing to oblige him, I hunted about in various directions, and up and down, till I had got together a heap. I looked at them, and speculated how I could get them to the hotel. I chanced to have a sheet of brown paper and some cord; with my pick I rolled the plants on the paper, then roped them together, and being some distance from a tram, and as there was no one about to give a helping hand, I stuffed my bonnet with resisting material, and with a struggle got the bundle on my head, and trotted along till I got to the tram-station; then to get them to the hotel was another puzzle—the newspaper-boys would not touch the nasty things. I vowed to undertake no more collecting of such plants. For close on a year the evidences of the Cacti could be seen on my legs. I need not say I left Mr. Chalwin and a friend who accompanied us to do the carrying. The two places we visited were Laingsburg and Grootfontein. Mr. Chalwin being keen on Stapelias, we made a special search for them, but as we could only cover a few miles, collectors or botanists need not fear that we took them all. The plants named, and any number of other genera and species may be collected in waggon-loads, and their removal would not be noticed; many large plants of untold age stand ready to be removed by anyone desirous of possessing a grand collection of the Karoo succulents. It is worth noticing that this is a delightful place to live in by those who desire a dry, bracing climate; it is always cool at night, but with plenty of blankets on the bed, a sound and refreshing sleep is secured. *Peter Barr, V.M.H., Cape Town, S.A.*

APPLE NORFOLK BEAUTY.

Fig. 152 represents the new culinary Apple shown at the last meeting of the Royal Horticultural Society by Mr. W. Allan, of Gunton Park Gardens, Norwich, when it gained a First-class Certificate. Mr. Allan believes it to be a cross from Warner's King and Waltham Abbey Seedling, or Dr. Harvey as this Apple is known in Norfolk. The novelty has large-size fruits, which when baked are of good flavour, and sufficiently sweet without added sugar. They keep well until the end of the month of January. For further particulars see our issue for Dec. 13, p. 445.

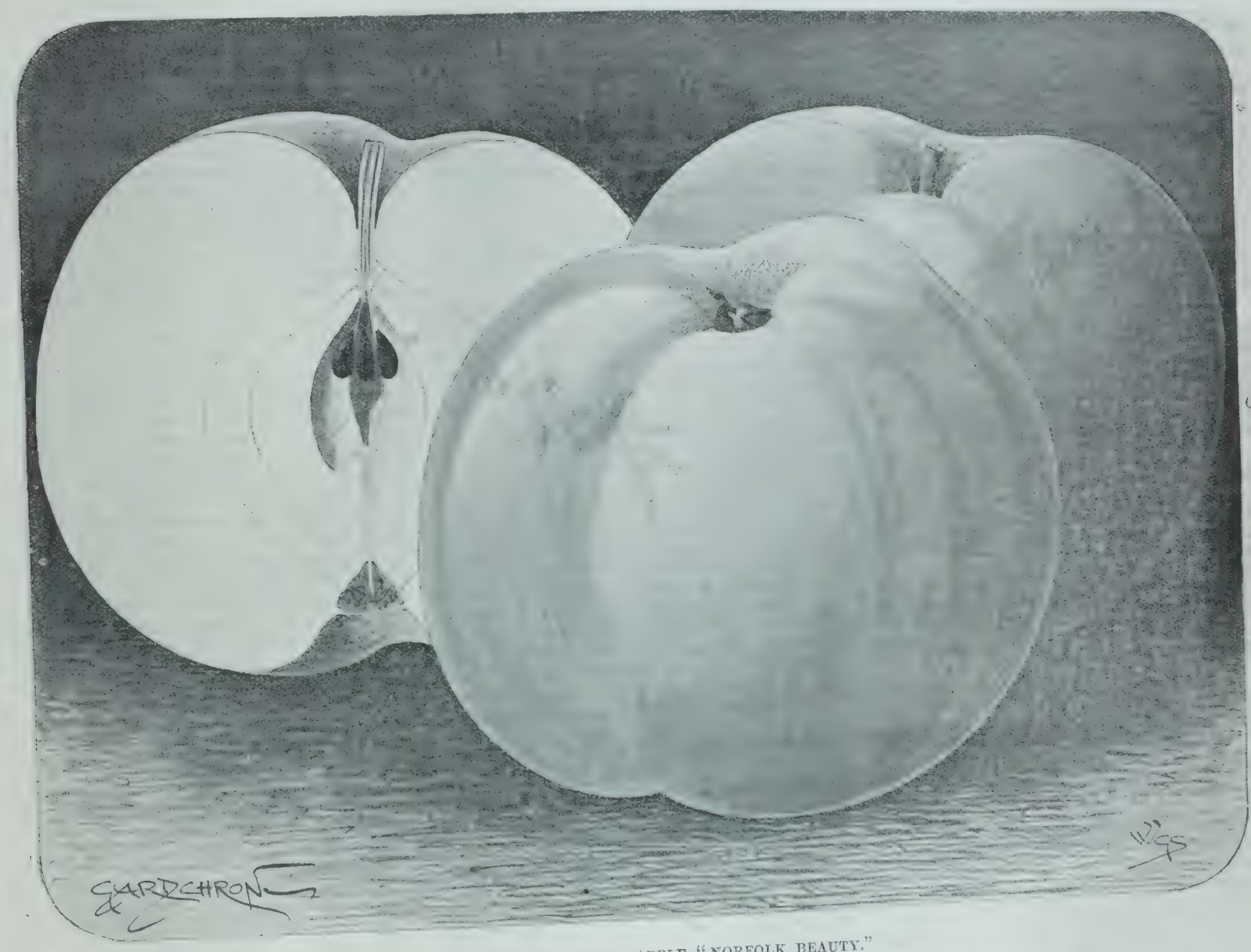

Fig. 152.—Seedling Apple "Norfolk Beauty."

THE ROSARY.

SOME NEW ROSES.

(*Continued from p.* 411.)

It was on a bright summer's day, ah, me! how many years ago, that I first made the acquaintance of my late friend, Mr. Ben Cant and his nurseries at Colchester; that friendship continued for a good many years, during which I watched with keen interest the prominent position he gradually acquired amongst the old generations of florists. He was a straightforward and honest exhibitor, and had not succumbed to the much-to-be-condemned practice of judging his own Roses. It was principally among the Hybrid Perpetuals that his success was achieved; but he was not a raiser of seedling Roses, for h

Prince Arthur was, I believe, a sport of General Jacqueminot, retaining all the qualities of that fine flower, but of a more highly coloured character. During the latter years of his life Ben Cant was a great invalid, and the Rose world saw little of him. His two sons, one of whom, Cecil, for many years kept up the honour of the house by the beautiful stands he exhibited; he was after a while joined by his brother Benjamin, whose mind was set upon adding some new varieties to our catalogues, and it says a good deal for his intelligence and skill that during the first year when the results of his hybridising were exhibited, two Gold Medals given by the National Rose Society were awarded to his productions.

Ben Cant.—This is a most valuable addition to our dark Roses, its parents being Victor Hugo and Susanne-Marie Rodocanachi; its colour resembles that of Victor Hugo, being dark clear crimson, with darker flushes in the centre. It is a very sweet-scented flower, and thoroughly perpetual, blooming till late into the autumn; and is destined, I think, to keep the name of him from whom it is called fresh in the memory of Rose-growers. We have had so many pink and light-coloured Roses lately, that it is refreshing to get such a fine dark coloured Rose as this. It was awarded the Gold Medal of the National Rose Society, and at Brentwood it obtained the Silver Medal for the best Rose in the show.

Mrs. B. R. Cant (*T.*).—Another Gold Medal Rose, very hardy, and somewhat of the style of Madame Lambarde; very variable in colour, and like that variety, of a deep red colour in the autumn. It is very robust, sweet-scented, with fine foliage, and blooming well on into the winter months.

Lady Roberts (*T.*).—This is a valuable addition to our Tea Roses; of the Anna Olivier type, its colour is a rich bright apricot-shaded orange, the base of the petals being a bright coppery-red; altogether an attractive flower. It obtained the distinction of having two Gold Medals of the National Rose Society awarded to it, and was exhibited by Mr. Frank Cant, to whom we owe its introduction. I look forward with confidence to its appearing in most of the winning stands of Tea Roses next year.

Longworth Beauty (*T.*).—This Rose was exhibited as A. H. Grey, and under that name obtained many Certificates. The colour is a pretty apricot-yellow; it is a strong grower, and one of the sweetest-scented varieties we have. This variety was raised by Mr. George Prince, and exhibited under the name of A. H. Grey.

Souvenir de Pierre Notting (*T.*).—This variety was raised by Messieurs Soupert & Notting, of Luxembourg, and was exhibited by Mr. Prince of Oxford at the Temple show of the N.R.S., where it was awarded the unique distinction of the Gold Medal of the Society, and I believe it is the first foreign Rose that has received this honour. It is a cross between Maréchal Niel and Maman Cochet, and is a valuable addition to our yellow Tree Roses; its colour approaches Maréchal Niel, and, like that flower, is very highly scented. I have often wondered that we have had no seedlings of Maréchal Niel before. As I have not seen it growing, I do not know whether it has the one defect of that fine Rose, that of holding its head down.

Messrs. William Paul & Son have devoted their attention more to decorative Roses than to exhibition flowers; two of their new decorative Roses have received the Award of Merit from the Royal Horticultural Society.

Morning Glow.—Flowers of bright rosy-crimson, enriched with bright orange and fawn, very attractive in its colouring, and likely to be very useful for bedding as well as for cutting.

Salmonea.—A deep, bright crimson flower, very large and full, with light crimson centre.

I have already alluded to the manner in which Turner's Crimson Rambler has been made use of for hybridising. Messrs. Paul & Son have made a new departure with it, having used it with a Tea Rose as one of the parents; the one I will now describe should be used in every garden that is not wholly given up to exhibition varieties.

The Tea Rambler, as it has been called by its raiser, has large clusters of flowers which hold twenty or thirty buds of a salmon-pink colour, with a coppery shading on them; it has a delightful Tea perfume, and the plant is perfectly hardy, and has all the rambling properties of the Crimson Rambler from which it is derived.

It will thus be seen that there is no diminution in the interest with which the Rose is regarded by those who especially have it under their care, and considering how much garden Roses have come into favour the last few years, I shall be quite prepared to find that we shall have many valuable additions to this class; and I have no doubt some of our experienced hybridisers will add a number to our exhibition varieties, Hybrid Perpetual, Hybrid Tea, and Tea Roses. *Wild Rose.*

PLANT SANITATION.

(*Concluded from p.* 432.)

The machinery for technical instruction in rural districts in England exists, and could be used (as it has been to a slight extent) for disseminating such doctrines. But the farmer will learn more by his eyes than by his ears. His own knowledge, which gives him what success he has in his art, has been gained by the use of his eyes, rarely by reading books or attending lectures. Demonstrations of the methods and results of plant sanitation, to which all agriculturists and horticulturists should be invited, should be carried out at local agricultural shows, at weekly markets and fairs, and at colleges of agriculture. The interest the bee-keeping, dairy management, and other demonstrations evoke at agricultural shows, points to the fact that farmers are not averse to taking advantage of this, the best method of instruction. Landowners might arrange that demonstrations of spraying, fumigating, isolating by trenches, and other operations, should be shown at convenient places, where their tenants and others could come and see these things for themselves.

The science of plant pathology and physiology has opened a new epoch in agriculture, and British farmers should be alive to this fact. Let them not allow their competitors in other countries to profit at their expense by knowledge which they also might possess, and which would enable them to get in advance of others by obtaining more from the soil, with less expenditure of time and money. It is difficult for those interested in these questions to avoid a tendency to "make the flesh creep" by exaggerating the probable results of supineness in the matter, but it is unwise, because the Britisher—and the agriculturist not less than other classes—directly he hears any suspicion of the shriek of the enthusiast, assumes an antagonism without relation to the gospel of the preacher.

The conversion of the agriculturist and horticulturist to these beliefs is not an easy matter, even as the agitation against small-pox, vaccination, and muzzling for rabies, shows to be the case with human and veterinary sanitation. A shorter and perhaps better way would be for those who control such affairs in the State to satisfy themselves—as has been done by foreign governments—of the importance of plant sanitation, and of the confidence to be placed in means already used, and then to enforce their practice. The history of sanitation shows that the existence of knowledge, and the promulgation of methods, were of little use till the force of the law was called in to make the carrying out of these methods obligatory. The mortality in human beings and domesticated animals would be far higher in Britain if the laws with regard to notification and treatment of cases of fevers, small-pox, pleuro-pneumonia in cattle, swine-fever, &c., were not enforced. There is little doubt that if the Board of Agriculture initiated similar measures to protect crops, in a short time those benefited would recognise their value, just as has occurred in other countries. In America, the National Government exercises a supervision and control in matters of quarantine and prevention of disease in plants, and expects each state to provide for the proper and timely application of the most approved remedial and preventive treatment when found necessary. The actual laws as to the suppression of diseases among cultivated plants are enacted and carried out by each state. These laws vary to some extent in the different states, but they are all accompanied by penalties—both fine and imprisonment—for neglect of orders to carry out the prescribed treatment. In Michigan, any person who neglects to remove and destroy a diseased tree or fruit, after such examination and notification as is provided by the law, is guilty of a misdemeanour, and punished by a fine not exceeding 100 dollars, or by imprisonment in the county jail for not exceeding three months, or both.

Such legislation in America has been in existence for nearly twenty years, and is extending with the exact knowledge of the method of spread of parasitic diseases, and with progress in agriculture. A permanent legislative committee was appointed some few years ago to watch over and control matters relating to plant diseases, and this committee is in touch with the various local authorities. This was the result of a "National Convention for the suppression in insect pests and plant diseases by Legislation," held at Washington in 1897, and attended by some fifty agricultural and scientific experts.

In Germany, official notice is annually given of examination for particular parasites, and these orders are carried out through the police authorities. In some of our own colonies, notably Australia and Canada, equally strict laws exist. Queensland has fully recognised the value of state aid to agriculture, by giving it the best scientific advice, and by the "Diseases of Plants' Act, 1896," of that colony, after enacting that certain importations of plants from places where diseases of these plants are prevalent are prohibited; every nursery is required to be registered, and regularly inspected by an officer duly authorised by the Minister for Agriculture. In the event of the nursery being diseased, the officer notifies the nurseryman to take the necessary measures for the eradication of the disease, specifying the required measures in clear and easily intelligible language. For example, in the case of fruit-fly disease, the instructions are:—"All fallen fruit of whatever kind, whether harbouring insects or not, shall be gathered at noon of each day, and all pest-infected fruit shall be submitted to the process of boiling, or be buried beneath not less than 1 foot 6 inches of solid earth. The trees shall be sprayed with one of the following mixtures." (The methods of preparing the mixture, and the number of and interval between the applications, are given.) That in countries where personal freedom is so carefully guarded such laws should be passed and carried out without friction, shows that the planters of these countries are awake to the value of these legal enactments.

There are difficulties in carrying out such laws, and it may be urged that the inspection would be costly, and hard to carry out efficiently; but these difficulties have been met with and overcome in

human and veterinary sanitation, and even in plant sanitation they are not proving at all insuperable in countries where the system has been in force for some years. It is said that in Britain we are not yet ripe for this kind of legislation, and that popular opinion would disapprove of measures interfering with the freedom of Tea-cultivators. But history shows us that such arguments have been adduced against sanitary reform in men and animals. The effective carrying out of health regulations, and the economic benefits which result, have been the best answer to these objections. The Board of Agriculture could, by means of existing data, easily satisfy itself and others that the cost of the introduction and administration of sanitary laws for plants was money well spent. A series of epidemics, causing great losses to farm crops and other plants, would no doubt produce a different feeling in the matter; but would it not be wiser to learn by experience already gained, and not wait for further lessons from this expensive though effective teacher?

Looked at from the point of view of insurance against possible losses, or as an investment which will ensure greater profits, plant sanitation should commend itself to the business man. It is the duty of those whose interests are at all affected by the prosperity of agriculture—a fairly extensive class—carefully to weigh the evidence in other countries and at home in favour of sanitary methods for plants, and having convinced themselves as to their practical value, to lose no opportunity of furthering the cause of *Planta sana in plantario sano*, by inculcating the aims and methods of plant sanitation, and where advisable taking means to obtain the support of the State. *J. B. Carruthers, in "Contemporary Review" for May*, 1902.

HYDRANGEA HORTENSIA NIVALIS.

To many of our readers the variegated Hydrangea illustrated in the present issue (fig. 153), will not be regarded as a novelty. A basketful of small plants was shown by Messrs. Bull & Sons, Chelsea, S.W., at the meeting of the Royal Horticultural Society at the Drill Hall on December 9 last, which showed well the striking variegation of the leaves. These had a margin threequarters of an inch wide, of a deep green tint, surrounding an irregular central patch of creamy-white. It is an effective greenhouse plant.

MARKET GARDENING.

SOWING TOMATO SEEDS.

From this date onwards seeds will have to be sown. A high degree of fire-heat must be avoided even in sharp weather, more especially if the seed-boxes are placed on the shelves in the houses. A vinery in which forcing is begun affords a good place in which to raise the seeds. Sow thinly in shallow trays. The young plants have many enemies to devour them as soon as they peep through the soil. I would advise the seed-boxes to be stood upon pots, &c., and to search diligently for the several kinds of depredators. Having filled the boxes, pans, or pots with compost, before proceeding to sow, afford water with a fine rose water-pot, and let them drain for an hour or two before sowing the seeds; cover the latter with fine sifted soil, which should not be very dry, but rather moist instead. Cover the boxes, &c., with a sheet of a newspaper for a week, and apply no water till then. Doing this gives the seeds time to swell, and then, if the paper covering be removed and tepid water afforded, there will be quick germination. It is well to be particular in this matter, so as to afford the seedlings a good start. The market cultivator is somewhat rough-and-ready in his methods, especially with small things; but the best growers are those who see to every detail, especially with plants for early fruiting. *Stephen Castle.*

THE ACTION OF MINERAL MANURES ON HUMUS.

The belief is steadily growing that in the work of the fertilisation of the soil, the action of humus plays a very important part in its association with mineral manures. It is estimated that a cereal crop in a year takes from the soil from 1,500 to 1,800 lb. of humus per acre. That must be restored to the soil, otherwise its capability to support vegetable growth will decline. Soils may be well supplied with phosphoric acid, potash, and nitrogen, and still be poor if the supply of humus be wanting. The ploughing under of green crops, such as Lupin, Rape, Clover, &c., is a ready resource for obtaining humus. In 1890 the French Government aided in the establishing of an agronomical station at the Parc des Princes in the Bois de Boulogne, a few miles outside the capital; it was placed under the direction of M. Grandeau, the eminent agricultural chemist, who is besides a distinguished practical farmer on his own estate in Lorraine. The site of the experimental farm is a poor sandy-gravelly soil, with very little humus in its composition, and very deficient in the mineral elements for the nutrition of plants.

Fig. 153. HYDRANGEA HORTENSIA NIVALIS.

Prof. Grandeau at once set to work to reclaim the soil. He removed the wild vegetation, of which Broom was the principal, and buried it in the soil that was trenched to the depth of 2 to 2½ feet deep. The land received an application of stable-manure at the rate of 3 cwt. [?] per acre, which was little. However, that and the scrub buried during the trenching, was all the organic matter which the soil received. Stable-manure is known to be the best substitute for humus. The portion of soil destined for experiments was divided into sixteen plots of six perches each.

Plots one and sixteen were cropped, but never manured, they being retained as standards of comparison; the other fourteen divisions were cultivated, the crops being cereals, Potatos, and forage-Maize. Phosphoric acid was supplied from phosphates under various forms, obtained from various sources—brut, mineral phosphates, superphosphate, and pure crystallised phosphate, at the collective rate of 2¼ cwt. per acre, plus 1½ cwt. of kainit for the potash.

That was the mode of culture and of manuring pursued on the fourteen plots from 1892 to 1897, a period of six years. The *débris* of the crops constituted the only organic matter which the soil received. In 1898 it was decided to renew the mineral manure, and so restore in a great measure what was taken away. Thus, the fourteen plots received at the rate of 1½ cwt. per acre of phosphoric acid in the form of mineral phosphates, superphosphate, and basic slag of different degrees of solubility. The kainit or potash was renewed, but at the rate of 3¼ cwt. per acre. The reclaimed soil had now been nine years under cultivation—cereals, Potatos, and forage-Maize; so it was decided to commence in 1900–01 the experiment of introducing into the soil a certain quantity of organic matter, almost wholly destitute of phosphoric acid, and thus determine how the assimilation of that element would be affected in the yield of the products. Dutch peat or turf was selected. In October, 1900, 15 cwt. of the turf were distributed over the moiety of each of the fourteen parcels of soil, corresponding to a rate of 20 tons per acre. The other half of each plot received no peat; they were left so purposely for the sake of comparison. But lots one and sixteen, which received no enrichment since their reclamation nine years ago, had one of their moieties given the same dose of turf as the other plots, the other half receiving none. The analysis of the peat yielded organic matter 81·61, water 17·00, mineral matters 1·59, total 100. Further, 100 grammes of the turf contained 0 gr. ·765 of organic nitrogen, but of no use to vegetation until converted into the nitric state, 0 gr. ·028 of phosphoric acid, and 0 gr. ·006 of potash. Thus, the 20 tons of turf per acre conveyed to the soil 17 tons of organic matter, 3 cwt. of organic unassimilable nitrogen, 40 lb. of phosphoric acid, and 38 lb. of potash. The quantities of phosphoric acid and potash were too small to exercise any influence on the plants cultivated on the plots. The soil being very poor in lime, the organic nitrogen of the turf could only nitrify, and could not tell on this season's products.

As already observed, the plots were divided into two parts, those dosed with peat, and those not so treated. Each of the moieties were thus again subdivided into two parts of equal areas, making three parcels per plot. One of the subdivisions received mineral manure according to the full-dosed portions, viz., 260 lb. of nitrate of soda per acre for Potatos, and 88 lb. for the cereals. There was now a series of three experiments:—First, cultivation on a mineral manure with nitrate; secondly, cultivation with a mineral manure and turf, but no nitrate; thirdly, cultivation with mineral manure, turf, and nitrate. The influence of the mineral, the organic nitrogen, and the nitric nitrogen can thus be compared. Bear in mind, the object of the experiment was to ascertain the action that organic matter would be able to exercise upon the assimilation of phosphoric acid by the plant.

The fertility of the black earth of the soils of Russia is attributed to the preponderating *rôle* played therein, by their humus. The humus contains a considerable proportion of phosphoric acid in a particular state of combination with organic matter, and that the roots of plants absorb with facility. All the soils in question contain this valuable black substance—humus, possessing from 1 to 15 per cent. of phosphoric acid. Now the connection between the humus and the quantity of the acid would reveal an interesting indication of the probable fertility of a soil. The black matter is a kind of digestive of phosphoric acid, that it places in an immediate assimilable form at the disposal of the plant. M. Risler, since 1858, has drawn the attention of the agronomic world to that important fact. He showed that the organic matter dissolves much more energetically the phosphate of lime than water charged with carbonic acid. *Ed. Conner.*

MARKET NOTES.

THE CHRISTMAS GRAPE TRADE.

Fortunately for the grower and the trade, the Christmas season is not confined to the day or week, but is prolonged before and after. I am please to chronicle this fact, that both growers and salesmen are very decided in their statement that Grapes have now touched the lowest price for the season, and are now rising. The present prospect is at least a good one. There have been two causes which have kept Grapes at a low figure—first the quality, which has not been of a very high order; and then the bulk on hand has been more than the trade could handle.

In connection with the latter fact, I must note that with the great quantities of imported foreign fruits, including Grapes, except for the better-class trade, there has been much to keep our own supply in the background. I have noted previously that Grapes have not been of a very high class, quality being wanting in finish and ripeness, and size of berry.

It is very singular that while there has been a certain call for better Grapes, the difficult part has been to obtain a fair price. Thus, if salesmen asked what they considered a fair price, enquirers would either pass on, or take to the cheap lines; and thus too often, while the salesmen were holding out for prices, the market was gone, with the result that with the best only a medium price was obtained at next market-day.

The present market points to a healthier condition, and good Grapes are now wanted, and being moved freely. On the other hand, I know of large growers who are holding the bulk until over Christmas, simply supplying the order trade. I have observed Lady Downes' Seedling at some of the leading shops, as also Appley Towers, but these Grapes hail from private growers, and do not come into the open market.

Gros Colman maintains its reputation as the market Grape; no Grape can show in proportion so many good points, the chief of which is the large size of the berries. Colour, again, is quite up to average, and the bunches are good. There are (ever will be) some wanting in colour, but even these, if good berries, sell quickly.

Alicantes, which are now better both in berries and bunch, meet with good demand. A vast quantity of this variety has been very much out of condition in every respect. The season has no doubt been against it, especially when grown in a low temperature, and in some cases without fire-heat.

Muscat of Alexandria is now wanted, and for these fancy prices are being obtained. While there is no difficulty in keeping when well grown, the past season has left its mark, and in my many calls I find apparent in trade and private establishments the great evil of shrivel in the berries. The market supply of Muscat of Alexandria throughout the autumn has been of very middling quality, in berries, bunches, and colour. I should suppose the returns have been most disappointing to the growers.

Canon Hall Muscat, in the hands of a few large growers, has sold the best of any Grapes throughout the season. With this variety the berries were large, although in some cases the bunches were thin, and this, no doubt, is the cause of the ready sale, the public preferring size, and not considering quality.

Gros Colman must be very good at all times to command 2*s.* per lb., but even higher prices may be occasionally obtained; 1*s.* 6*d.* to 2*s.* per lb. is the average. Black Alicante at 1*s.* 6*d.* is a high figure, more going at 1*s.* to 1*s.* 3*d.* per lb. Muscats are difficult to quote, the best samples being sold from 4*s.* to 5*s.* per lb., the general run being 3*s.* to 3*s.* 6*d.* Canon Hall fetch even higher prices than the foregoing. The prices I quote are for clean, good samples. *Grower.*

The Week's Work.

THE ORCHID HOUSES.

By W. P. Bound, Gardener to J. Colman, Esq., Gatton Park, Reigate.

Imported Plants of Dendrobium, Phalænopsis Schroderianum, &c.—When a plant is received, let it be freed of dirt and insects before it is placed under glass. If time permit, the plant should be potted in equal parts of the chopped fibre of peat, sphagnum, also chopped into pieces, and good leaf-mould, these ingredients being intimately mixed together. An Orchid-pan with no holes at the side is a more suitable vessel than a pot or basket. Put a few crocks on the bottom, and over these some chopped rhizomes of bracken, and fill the pan to rather less than half its depth. Pot rather lightly, keep the dormant bud of the plant slightly above the rim, and secure the plant to a neat stake. Chopped sphagnum and peat-fibre should be used as a finish to the surface. Fasten wire to the rim, and hang up in the warmer house. If there are several such plants, hang them in a group together, in a light part of the house, and afford no water before growth begins, but lightly syringe them on bright days. If several flower-spikes show, retain but one, and reduce the flower-buds on that one, to two or three for testing purposes. The progress of the plant in the future will be increased if the flower-spikes are removed before new roots are made.

Dendrobiums.—Many of the deciduous and semi-deciduous species may be fit for removal from the quarters in which they have been resting to those somewhat warmer. The new pseudo-bulbs often show a black spot on the skin, the result probably of lack of sunshine; and on this being observed, the plants should be kept rather dry, and be removed from the cool-house in which they have been resting, and remove some of the flower that might be obtained by further resting. Usually the black spot appears on the pseudo-bulbs and dries up, but should it spread, scratch the spot with a sharp knife, and sprinkle sulphate of potassium (liver-of-sulphur) or black sulphur on the infected part, which will soon eradicate the disease. The earliest Dendrobes to flower are D. aureum, D. × Cassiope, a beautiful hybrid; D. × Curtisii, and D. burfordense, plants which can always be had in flower at this season without causing injury to the plants. The flowers on the more forward plants of D. Wardianum may be allowed to gently open, and it should be remembered that if this species flowers profusely the flowers should not be kept on the plants for any great length of time.

FRUITS UNDER GLASS.

By James Whytock, Gardener to the Duke of Buccleuch, Dalkeith, Scotland.

Strawberries.—The earliest batch, which were plunged in a bed of tree-leaves having a bottom-heat of 70°, should be afforded a temperature of 50° to 55°, and when the flower-trusses appear, remove the plants to a shelf near the glass in an early Peach or similar structure. Assist the setting of the blossoms with a camel-hair pencil, or by slightly syringing the plants in the morning. Keep the plants supplied with moisture at the root, and as soon as fruits are set in sufficient numbers, apply a surface-dressing of artificial manure, and a temperature of 65° at night, and

10° higher by day. Still keep the plants near the glass, syringe the foliage daily, and keep the house moist. Many gardeners find the present date quite soon enough to begin to force. Bring the plants on slowly, as advised in an earlier Calendar, and follow previous instructions.

Vines in Pots.—Those which were started last month in a bed of tree-leaves should be taken off the pedestal, and the materials turned over, more being added so as to maintain a heat of 75° only. When the buds break, increase the night temperature from 60° to 65°, according to the state of the weather; and although the bed will supply moisture to the air, the walls and floor should be moistened with weak manure-water, which will fortify the foliage against attacks of red-spider. On very cold nights, do not let the temperature rise to the normal, but let it drop 5° or 7°.

The Earliest Permanent Vines, where the buds are swelling, should be afforded a temperature of 55° at night when the air is very frosty, increasing it generally to 60° when the buds burst into growth, and affording 5° more on mild nights. On bright days check the fires early in the morning hours, and let the sun raise the warmth 10° or 15° higher than the mean. Apply ventilation every morning whenever it is safe so to do.

The Early Fig-house.—The Fig is coming more and more into general consumption, and when the trees are grown under proper conditions, forcing is not a difficult matter. The earliest crop should be taken from bushes grown in pots in porous soil, loam, and provided with ample drainage. A start may be made at the same time as the early Vines, plunging the pots in a bed of tree-leaves, and affording a night temperature of 50°. Fig-trees growing in borders should have circumscribed root space, or much wood will result and but little fruit. Let the soil be top-dressed with a good artificial fertiliser, which will entice numerous roots to the surface. The house of planted-out Figs may be set agoing again in a week from the present date, the instructions given for the earlier Figs until the second swelling being carried out. The leaves of Figs should be syringed daily.

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Potatos.—Preparations may be made forthwith for planting sets in heated pits and frames. The tree-leaves and litter in equal proportions should, previous to making the bed, be got together and left to ferment, and the interior walls meanwhile be lime-washed. When a good heat has set up, turn the heap and let it still further ferment, and in about a week later build up the bed, firmly trampling the materials so that the bed shall set evenly. Let it alone for a few days, afford another trampling, and soil the bed with heavy loam. The soil for moulding up the rows may be of a lighter nature. Place forthwith sufficient tubers in mild heat to sprout whilst the bed is being got in readiness, standing them upright, the bud end uppermost. If laid on the border in an early Peach-house, they will sprout quickly and strong. Before planting, reduce the number of shoots on a set to two, which enables the sets to be stood closer together in the rows, and the produce to be of a regular and serviceable size.

Mushroom-house.—Collect horse-droppings when possible from the dung pit during the next few weeks, and make up more beds as soon as it can be got into a proper condition. If the materials have to be taken into the Mushroom-house direct from the outer air, do this during the warmest part of the day, and do it expeditiously. Keep the temperature at 60° by day and night for the next few weeks, and place the soil for covering the beds at one end of the Mushroom-house, or in some other warm place. Damp the floor two or three times a day according to the amount of fire heat used. The hay which is used for covering the beds should be removed occasionally, and the beds examined, when if the soil is found to be dry afford tepid water rather abundantly, after a general gathering of all the useable Mushrooms, and return the hay after the surface of the bed has dried somewhat; and unless the bed is exhausted, a fresh crop of Mushrooms may soon be expected.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Bush-fruit : Gooseberries.—It is doubtful, even where tomtits and other birds take the buds, whether anything is gained by delaying the pruning till late in the spring, as in such case it is not safe to leave the bushes unprotected, the birds taking the buds on the very shoots necessary for forming a symmetrical crown. When the bushes are pruned at the present season, and afterwards syringed with whitewash and soot, with half-a-pint of quassia extract mixed with every 4 gallons, the depredators do but little harm. Pruning finished, clear up the prunings, manure and dig the land, leaving it in a neat condition. If the Gooseberry sawfly-caterpillar gave trouble last year, it is good practice to clear away the soil under each bush, trench it in deeply in another part of the garden, and replace it with fresh soil. The pupæ are found in the upper layer of soil, and seldom deeper than 3 inches. The lowermost shoots should be cut back to within an inch of their origin, and those that are upwards of 2 feet in length shortened. Remove all weak and some of the strongest shoots that spring from the centre of the bush, and leave the bearing shoots 3 to 4 inches apart. Young bushes should be severely cut back during the first few years, varieties of an erect habit of growth to an outside bud, pendulous and spreading ones to an inside bud; and much less pruning would be necessary if the shoots were disbudded in the early summer months.

Currants.—The black-fruited variety produces its finest fruit on shoots of the previous year and on the stubby shoots, and some of the latter should be retained. Shoots that are getting barren should be cut down to the ground, and new growths selected which spring from the base, allowing plenty of space between the branches generally. The shoots of young bushes should be cut down to within 6 or 9 inches of the last pruning for the first two or three years, this operation applying also to the red and white varieties. The last two, if fruiting, should have all side shoots cut back to within ¾ of an inch of their base, and leading shoots to within 9 inches of the point of origin. Currants pay for liberal dressings of farmyard manure on light soils, and spent hot-bed materials on heavy land.

Cuttings.—Currant and Gooseberry shoots for the making of cuttings, should be selected from the prunings, these being 12 to 15 inches long. They may be made into cuttings forthwith and put out in ranks at 6 inches deep, 4 inches apart, the ranks being 12 inches asunder. All buds on the shoots should be cut out except the uppermost four, excepting in the case of the black Currant, upon which all the buds should be left.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Hippeastrums.—Those who require flowers at a very early date should now make preparations. Let a gentle hot-bed be made up of fermented tree-leaves, from which the rank fumes have passed off; or failing these, employ tanner's bark, and with or without hot-water pipes beneath the bed, according to circumstances. When the heat is steady at 60° to 65°, the bulb-pots may be plunged to the rims, and the top heat maintained steady at about but not exceeding 55°, which will have the effect of causing the spikes to advance slightly before the leaves, which is the more desirable condition. But little water will be required beyond what is afforded the plants by way of syringing and damping-down the house, though a very good practice is to immerse the pots in some fairly strong manure-water if the soil is poor, and allow them to drain off superfluous moisture before replunging them. Bulbs which may need repotting should be shaken out just previous to starting them, and be repotted in a mixture of turfy loam and leaf-mould, together with a slight addition of decayed manure, sand, and lime-rubble. Such bulbs should not, however, be put into warmth till the spring; and those that are forced early should not be disturbed at the roots, but be top-dressed, after removing as much of the old soil as can be pricked out without interference with the roots.

Lilium Harrisii.—The earliest-potted bulbs will now be sufficiently rooted for starting in warmth, bringing them on gently at first, in a temperature not higher than 55° in a fairly moist house; but, as in the case of Hippeastrums, very little water at the root should be afforded until growth becomes vigorous.

Clivias.—The amount of root-moisture afforded these plants should now be considerably reduced, and in the case of those growing in borders no more water at the root will be needed till the end of the month of February, unless they are growing in shallow borders, or close to the hot-water pipes. Too much water causes the leaves to lose their tips, and to decay at the edges.

Solanums.—Some plants, in proportion to the demand, of the best-habited of the berried Solanums, should be divested of their berries, and placed in a warm-house, so as to induce side-shoots and tips to grow into sizes fit for making cuttings. An early start is very necessary in the case of this plant, if it is to be well grown within a year, and plants raised from cuttings are preferable to seedlings, the habit of the latter not being always good.

Frame Violets.—First the dense fogs, and then the recent frosts, have been bad for Violets planted in frames, which are never quite a success if they be not freely ventilated. Violet plants should be kept free from decayed leaves, and the soil amongst them lightly stirred occasionally. During fine weather, in the absence of frost, it does the plants much good to remove the lights entirely by day, and to prop them up well at night.

Conservatory. — The conservatory and show-house should now be cleared of flowering plants gone past their best, and furnished with fresh plants from the greenhouse and supply-pits, including Euphorbia pulcherrima. A rather low temperature will do this plant no harm, if the soil be not kept too wet. The conservatory or show-house should be arranged a few days before it is wanted at its best, the plants taking some time to settle into position.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Summer Bedding Plants.—Pay frequent attention to the bedding Pelargoniums standing in trays and pots; remove decaying leaves, and stirring the soil slightly, so as to prevent moss or weeds growing, and to aërate the roots and soil. As regards water at the root, apply just as much as will prevent the flagging of the leaves. Coleuses, Iresines, Heliotropes, and Verbenas should be kept quite close to the roof-glass in a warm frame or pit, otherwise weak growth will be formed; and be afforded a considerable quantity of water, but not so much as would keep the soil constantly wet. In order to preserve the stock plants of Lobelias in a healthy state, they must be kept quite close to the glass, under genial, buoyant conditions, with as small a quantity of water afforded as will keep the plants growing gently at this season. If any of the stock of succulent plants are likely to prove short, the fleshy leaves of Echeveria metallica, Cotyledon pachyphytum, C. umbilicus, and others of this class, should be pulled off, and laid on dry sand in pans or shallow boxes, placed on a shelf in the propagating-house, where after a short time small plants will form at the ends of the leaves; and these should be carefully afforded water, and when large enough to handle, potted off into small pots in sandy soil. Rooted cuttings of Marguerites, Gazanias, and Calceolarias should have the frame-lights entirely removed in fine, mild weather, otherwise growth will lack vigour. See that sufficient protective material is kept in readiness to cover the frames in the event of frost.

General remarks.—Much may be done to maintain the appearance of the lawn at this season by frequently sweeping and rolling it, and the paths may be similarly treated. Christmas-tide brings in many gardens much additional work for the gardener and his assistants in the matter of house and other decorations, the necessary preparations for which have to be made before other persons begin to think of the season at all. When evergreens are being collected, the work should be carried out with care and discrimination, so that trees and shrubs are not spoiled.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* EDITOR, 41, Wellington Street, Covent Garden, London. *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Newspapers.—*Correspondents sending newspapers should be careful to mark the paragraphs they wish the Editor to see.*

APPOINTMENTS FOR THE ENSUING WEEK.

THURSDAY, DEC. 25—Christmas Day.
FRIDAY, DEC. 26—Bank and General Holiday.

SALES FOR THE WEEK.

MONDAY, DEC. 22—
Bulbs, Roses, and Hardy Plants, at Stevens' Rooms.—Dutch Bulbs, Perennials, Carnations, &c., at 67 and 68, Cheapside, E.C., by Protheroe & Morris, at 12.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —38 7'.

ACTUAL TEMPERATURES:—
LONDON.—*December* 17 (6 P.M.): Max. 55°; Min. 49° *December* 18 (9A.M.).—Temp. 50°: fine, mild.
PROVINCES.—*December* 17 (6 P.M.): Max. 55°, Scilly; Min. 37°, N.E. Scotland.

The National Rose Society.

THE annual meeting of the National Rose Society, held on the 11th inst., under the adroit chairmanship of Mr. SHEA, was interesting for various reasons, some of which have a significance beyond the limits of a special society. In the first place, it cannot be said that the finances of the Society are in an unsatisfactory condition, although there was a deficiency in the "gate-money" taken at the Temple Show. That deficiency was met by calling on the guarantors to the extent of £90. A large increase in the number of members, representing a net gain of 150, was no doubt attributable in great measure to the fact of a Rose Show being held in the Temple Gardens, and goes far to compensate for any loss that may have been incurred on that occasion. The deficiency in the receipts was no doubt attributable in great measure to the alarming illness of the KING, and to the enforced postponement of the Coronation—circumstances which had a deplorable effect on almost every department, whether of business or of pleasure.

If the Temple Rose Show is to be successful in future the managers must consult the tastes of the general public, and not confine themselves too exclusively to catering for experts. Amongst ourselves, at least, we may acknowledge that Rose shows, as at present managed, are tiresomely monotonous, and recognise that the long lines of green boxes, beloved of exhibitors, have, however convenient, no fascination for the public. Mr. SHEA, in reviewing the history of the Society during the past year, took occasion to press considerations like these on the meeting, as we have often done in these columns, and we hope now that it has been formally brought before the Society, we may see Roses exhibited so as to show their beauty to advantage. We have had proof enough that this may be done without at all interfering with the critical examination required by the judges.

The Rev. Mr. PEMBERTON, alluding to the critical remarks made by the Chairman, took occasion to prescribe his well-known panacea, viz., a two-days' show. This was supported by Mr. GORDON, but was not adopted by the meeting. The only way, as it seems to us, in which a two-days' Rose-show—a show limited to Roses—can be made successful, is to renew the Roses in part, at least, on the second day. The extra day is wanted in order to attract the paying public who, under existing circumstances, only hear of the show when it is all over. They read the accounts in the morning papers, but it is then too late for them to indulge their desire to go and see the Roses. As it is, the Roses make a sorry display at the end of a summer's day, and on the second day—well, we feel we ought to put on mourning for them. If it could be so arranged that the competitive show for experts, exhibitors, judges, and the Fellows of the Society generally, could be held on the first day, to be followed on the second day by a popular display of Roses arranged in the most attractive manner possible, we think a result satisfactory to all classes might be arrived at. No doubt, if the prize blooms themselves were no longer in a condition to receive visitors, others of the same variety would be forthcoming, perhaps as good, or it might be better than the prize blooms, or, at any rate, the difference would not be appreciable by the public. Of course, there would be difficulties in the way, but enthusiastic exhibitors are not in the habit of quailing before difficulties.

As to the question of the date when the principal show should be held there was much discussion, but as so much depends on local and seasonal circumstances there is no fixed principle involved; and this matter, which is one of expediency, may be left to the decision of a sub-committee.

Of much more general interest was the question raised by Mr. ORPEN, as to whom the Gold Medal should be awarded in the case of a meritorious novelty. This question, it appears, had been referred to a sub-committee, who had not been able to come to a definite conclusion; and hence with a view to eliciting opinions, Mr. ORPEN proposed the following resolution:—

"That regulation 13 be altered to read as follows:—

The Gold Medal of the Society may be awarded to any Seedling Rose or distinct sport, whether raised in the British Isles or elsewhere, and the variety for such an award must be exhibited by the raiser or by the introducer, and the Medal shall go to the exhibitor. If exhibited by the introducer, the Medal must go to him as such, and the raiser's name must also be stated on the Award.

No variety shall be eligible to receive a Gold Medal if distributed earlier than May 1 of the year in which it is exhibited for such an award, and no variety which has won the Gold Medal at an exhibition of the Society, can again receive this Award at any of the Society's exhibitions.

The subject bristles with difficulties, and the Chairman, perceiving how mixed were the issues, wisely suggested the postponement of any decision till it had been more thoroughly discussed. Between this time and the next anniversary meeting, opinions may crystallise. For the present, we have to analyse the proposals, and one of the first things to do is, we think, to separate the merely commercial from the merely honorific element. If A. finds by chance in his grounds an accidental seedling or sport, he is entitled to make what he can of it commercially; but he can scarcely expect to receive also the same honour and respect which are due to B., who carries out a scientific experiment, as a result of which he brings to light a plant of the highest merit. In such a case, B. is entitled to the honour as well as to the commercial reward. C., who only exhibits the plant, in like manner cannot claim more than a pecuniary benefit. The Society, as a society, has nothing whatever to do with the commercial aspects of the case. It should be as the fountain of honour—as the temple of MINERVA—not the source of Pactolus.

The Report for the year, after dealing with the work of the Society for the period, includes a note of regret at the death of that enthusiastic rosarian, Mr. GRAHAME, and at the enforced retirement of the Senior Secretary and founder of the Society, Rev. H. H. D'OMBRAIN. Though physically unable to take part in the Society's meetings, it is pleasing to know that his interest in Roses, as shown by a recent article in our columns, and in the National Rose Society, still remains undiminished.

*** **OUR ALMANAC.**—According to our usual practice, we shall shortly issue a *Gardeners' Chronicle* Almanac for the year 1903. *In order to make it as useful as possible for reference, we shall be obliged if Secretaries of Horticultural, Botanical, and allied Societies, or any of our correspondents, will send us* IMMEDIATE INTIMATION *of all fixtures for the coming year.*

VIEW IN THE ROCK GARDEN, CHADDLEWOOD (Supplementary Illustration).—An article on the gardens of Chaddlewood, South Devon, the residence of Mr. G. SOLTAU-SYMONS, appeared in the *Gardeners' Chronicle* on February 2, 1901, accompanied by several illustrations. In the present number a view in the rock garden appears as a supplementary illustration. As was pointed out in the article referred to, it is in this portion of the grounds that the flower-lover's interest culminates, for the rock garden, which is its owner's special hobby, is the best on the mainland of the south-west. Every stone has been placed in position under Mr. SOLTAU-SYMONS' supervision, and every occupant planted by his own hands. It is not merely a garden of alpine plants, for numerous subjects in the way of shrubs, perennials, and annuals, remarkable for beauty of form or flower, have been introduced with the happiest results. The main portion of the rock garden, a view of a corner of which appeared on p. 81, vol. xxix., lies to the front of the subject of the accompanying illustration, which represents a narrow pathway leading to a sheltered recess in which Ferns and other shade-loving plants luxuriate. On either side of the pathway are bushes of the cut-leaved Maple (Acer polymorphum dissectum), one pale green in colour, the other deep crimson. These have been planted over thirty years. In front of the left-hand Maple is a plant of Campanula pelviformis, behind which is one of Erica codonodes, that at Chaddlewood reaching a height of 10 feet, and reproducing itself freely from self-sown seed. At the extreme upper corner to the left, may be seen Yucca gloriosa in flower, while in the foreground, on the right, are Androsace lanuginosa, Œnothera marginata (or eximia), Erigeron mucronatus, Sempervivums, and a Helianthemum. In the background, amongst a wealth of verdure, are the hardy Palm (Trachycarpus excelsus), Yuccas, and Cotoneaster horizontalis. A list of the occupants of this rock-garden would fill a column, but it may be said that the best species of Saxifrages, Sedums, alpine Pinks, Androsaces, Phloxes, Aubrietias, Campanulas, and other perennial rock plants, are successfully grown; and that

View in the Gardens, Chaddlewood, Devon.

other subjects, such as Lotus peliorhyncus and Phacelia campanularia, are employed with excellent effect. *S. W. F.*

THE NATIONAL CHRYSANTHEMUM SOCIETY AND ITS JUDGES.—Judging from the correspondence we have received on this subject, a great deal of unpleasant feeling exists on this matter. We do not insert all the letters we have received, partly from want of space, but chiefly because they show a tendency to indulge in personalities and insinuations, some overt, others covert. These latter for us are the most objectionable, as we should be made the means of publishing statements the significance of which is unknown to us. Quite apart from personalities, however, the principle stands out clearly that it is very objectionable for a committee of a society to appoint any of its own members to any paid office whilst they remain members of that committee. It is true that the Council of the Royal Horticultural Society appoints judges, some of whom may be from their own body; but such judges are not paid, and merely act in the same capacity as members of the committees do.

BRONZE AGE VASES FROM CRETE.—In the *Journal of Hellenic Studies* (1902), tab. xii., are described and beautifully figured some vases found in the ruins of a house of the Bronze Age. Some bear representations of a shell, and others conventionalised representations of the Egyptian blue Lotus Nymphæa cœrulea, as identified by Prof. VINES and Dr. MASTERS.

HYBRID POPPIES.—M. CAYEUX, in a recent number of the *Revue Horticole*, publishes an account of a hybrid which he raised between Papaver pilosum and P. bracteatum, his object being to obtain a hybrid with the free and continuous flowering habit of the former. He obtained ultimately a plant with intermediate characters between the two species named, and which is figured on p. 527 of the *Revue Horticole* for November 16.

CLEMATIS TANGUTICA.—This species flowers in spring from the wood of the preceding season. It is a scandent species, with palmate leaves, very deeply divided and sub-divided, and with the ultimate segments very narrow. The flowers, borne on long stalks, measure between 3 and 4 inches across, and have four, oblong, yellow, spreading segments. It is nearly allied to, but for garden purposes quite distinct from, C. orientalis. A coloured figure is given in the *Revue Horticole* for November 16.

SALE OF POISONS. — Various rumours are afloat as to the tenour of the report of the committee appointed by the government to consider the question of the sale of poisons, but until the report has been presented to Parliament, no definite or reliable information is likely to be forthcoming.

A CANADIAN NOTE.—A good project is now afoot for extending railway communication from Ontario to the Pacific coast of British Columbia. The length of the projected railway is 3,000 miles, and trade with the Far East will thus be greatly facilitated and encouraged. Canada has vast stores of horticultural and agricultural produce to dispose of, as well as valuable minerals, and it says much for the pluck and determination of our Canadian brethren, that to look at it one way—they have designed a "fall" with the combines of the United States with such admirable "play."

DR. JOHN LOWE. — We regret to have to record the death of this gentleman at Weybridge on the 12th inst. Dr. LOWE interested himself greatly in botanical and horticultural matters, and was at one time a frequent contributor to the *Transactions of the Botanical Society of Edinburgh*, and occasionally to our own columns. He was also for a time a member of the Scientific Committee of the Royal Horticultural Society. His best known book is his work on the Yew-trees of Great Britain and Ireland, an interesting volume denoting great industry and insight, appropriately illustrated.

THE NEW GRAPE shown at the last meeting of the Royal Horticultural Society, has been named Crawley's Kippington Grange Seedling, not Nippington Grange as was printed last week.

THE ORIGIN OF PROTOPLASM.—A new suggestion as to the nature and origin of protoplasm has been made by HERRARA.* By triturating the acetate, carbonate, or chloride of calcium with glacial phosphoric acid, and then treating the resulting substance with salt solutions, the author obtains a mass which behaves under the microscope very much as does protoplasm. It shows amoeboid motion, a vacuolar or granular structure, plasmolyzes in certain cases when treated with plasmolyzing solutions, can be stained with methyl green, has its movements accelerated by sodium chloride, &c.

GARDENING INSTRUCTORS IN IRELAND.—The following advertisement appeared on December 9, in the Dublin *Irish Times*, and may be worth the attention of young Irish gardeners in England who may be qualified to act as itinerant instructors in fruit growing and in general gardening, under the Department of Agriculture and Technical Instruction in Ireland. *F. W. B.*

SITUATIONS VACANT.

DEPARTMENT OF AGRICULTURE AND TECHNICAL INSTRUCTION FOR IRELAND.
INSTRUCTION IN FRUIT GROWING AND GENERAL GARDENING.

A number of County Committees of Agriculture and Technical Instruction require the services of Itinerant Instructors in Fruit Growing and General Gardening. The remuneration offered varies from £2 to £3 per week, according to qualifications, together with expenses of locomotion.

With a view to securing suitable Instructors for these posts, the Department of Agriculture and Technical Instruction invite applications from young Irishmen who have had experience in Fruit Growing and Gardening, and who are prepared to undergo an examination which will be held at the Albert Institute, Glasnevin, Dublin, at 10 o'Clock, A.M., on Friday, January 9, 1903.

The Department are prepared to employ, with the ultimate object of training them to become Instructors in Fruit Growing and General Gardening, a limited number of Candidates who, while not reaching the required standard, have shown in the examination a certain degree of proficiency and promise.

Full particulars and forms of application to attend the examination, which must be sent to the Department not later than January 5, 1903, may be had from—

THE SECRETARY,
Department of Agriculture and Technical Instruction for Ireland,
Upper Merrion Street, Dublin.

DAPHNE VERLOTI is a variety of D. Cneorum, found in the vicinity of Grenoble. It is a fortnight later in flowering than the species, and has larger and more deeply coloured flowers, as fragrant as those of the type. It is an admirable plant for the rockery. A coloured figure is given in the last number of the *Revue Horticole* (December 1).

THE LIVE STOCK JOURNAL ALMANAC FOR 1903.—In addition to the specially compiled calendar and diary, breeders' tables, lists of societies and fairs, statistics, breeders' directory, &c., it contains forty-seven special articles dealing with all varieties of live stock, and numerous illustrations of noted specimens, chiefly prize-winners at leading shows of the year.

A VINEYARD IN PARIS.—In the number for December 5, *Le Jardin* gives an illustration and a description of a vineyard at the corner of the Rue Damrémont, Lamarck and Grandes Carrières. There are five hundred Vines of the variety known as Trousseau. They bear well, and are utilised for wine-making. The illustration shows the vineyard surrounded by tall houses of the Parisian type.

* Herrara, A. L., *Le protoplasma de métaphosphate de chaux. Mem. Rev. Soc. Sci. "Antonio Alzate,"* Mexico, 17, 201—213, 1902.

"THE VIA EASTERN TELEGRAPHIC SOCIAL CODE."—This publication, compiled by ROBERT T. ATKINSON, and issued by WM. HUTCHINSON & Co., Trafalgar Buildings, Charing Cross, and ROBERT T. ATKINSON, Salisbury House, London Wall, E.C., contains a list of the Eastern and Associated Telegraph Companies' stations, and of their code words. As these number over fifteen thousand, a practically endless variety of sentences and messages generally can be expressed, as well as dates, numbers, cash references, and so on. The system seems simple, and the code-book should be of great assistance to those availing themselves of the companies' telegraphic stations.

DOUBLE-SPATHED RICHARDIA.—Mr. WILLIAM MERRITT sends us a photograph of Richardia africana, grown by him at Hungerford, and which has produced two white spathes. Such an occurrence is not unusual, and illustrations of it have been given in our columns.

"IPPI-APPA." — This rather suggestive title applies to Carludovica jamaicensis, figured and described in the *Bulletin of the Jamaica Botanical Department*. Its leaves are used in the fabrication of "straw" hats.

"THE GARDENERS' MAGAZINE."—Our contemporary, the *Gardeners' Magazine*, is sending out this year, as usual, a Christmas number full of pictures and seasonable letterpress. The supplement is an almanack, with a coloured picture of an old country garden; so readers and admirers of the paper generally will find no falling off in its attractions this year.

THE NATIONAL SWEET PEA SOCIETY.—The annual general meeting will be held at the Hotel Windsor on Monday, 29th inst., at 4 P.M.

"MANNINGHAM PARK AND ITS TREES."—The Bradford Scientific Association and the Bradford Natural History Society have conjointly prepared and published an excellent little handbook with the above title. Its cost is 1*d.*, and it is printed by J. S. TOOTHILL, Godwin Street, Bradford. It contains a short account of the park, and of the principal trees that adorn it. The information given is just that which the visitor with eyes in his head wants.

"AMATEUR GARDENING."—This periodical appears in a seasonably gay cover and with a double page coloured supplement, picturing an old cottage with its garden full of flowers. There is plenty of readable letterpress and abundance of illustrations in the body of the paper, so altogether it should prove a welcome Christmas number. The publication also contains a supplement composed of some eighteen pictures reproduced from photographs taken "in our readers' gardens." These are faithful representations of beautiful scenes as well as of specimen flowers and fruits.

FORCING BY MEANS OF ETHER AND CHLOROFORM.— We have kept our readers informed of what has been done in Germany and France in this matter, and have now the pleasure to announce the publication of a small pamphlet on the subject by Mr. ALBERT MAUMENÉ (Paris: Rue de Grenelle, 84 bis). It is in French; but those who read that language will find an excellent summary of our knowledge up to the present time. It has a special interest to us to note that M. MAUMENÉ deplores the want of initiative, and the indifference to what goes on in other countries, on the part of his countrymen. We seem to have heard that complaint on this side of the Channel.

"THE AGRICULTURAL ANNUAL AND MARK LANE EXPRESS ALMANAC."—This is the eleventh annual issue of this publication, and has been duly brought up to date as regards the list of societies and other tabulated information. It also contains useful articles, many of which

relate to the care of stock, and there are abundant and good illustrations. Mr. JOSEPH DARBY contributes a paper on The Farm in 1902, which he considers to have passed through a "peculiar" season, but favourable for the live stock of the farm. Fruit growing receives due attention, and Prof. W. J. MALDON writes on Developing New Varieties of Potatos, mentioning the variety Northern Star, which has sold at the rate of £1,120 a ton. The frontispiece to the Annual is a portrait of the Right Hon. the Earl of WARWICK. The publication has a world-wide circulation, and is issued from the *Mark Lane Express* Office, 1, Essex Street, Strand, W.C.

THE SURVEYORS' INSTITUTION.—The next ordinary general meeting will be held in the lecture hall of the Institution on Monday, Jan. 12, when a paper will be read by Mr. H. T. SCOBLE, (Fellow), entitled "Rural Drainage and Sewage Disposal." The chair will be taken at 8 o'clock. The Institution will be closed from Monday evening, the 22nd inst., to Monday morning, the 29th inst.

LIVERPOOL AMATEUR GARDENERS. — The annual social meeting of this branch was held on Wednesday, last week, at the Common Hall, Hackins Hey, Mr. A. W. ARDRAN presiding over a large attendance of members and friends, who thoroughly enjoyed the programme of music arranged by Mrs. ROBINS. The Association is doing valuable work amongst an enthusiastic band of ladies and gentlemen in Liverpool and the suburbs.

"AGENDA HORTICOLE."—The first of the "annuals" or year-books to reach us is that of M. HENRY, the Chef des Cultures at the Paris Museum d'Histoire Naturelle. In addition to the usual calendar and the directions for work to be executed in each month, there is a variety of articles relating to practical horticulture, which renders this unpretending little book very serviceable to those who read the French language.

MR. POCKETT'S CHRYSANTHEMUMS.—"When I took the matter of raising new varieties of Chrysanthemums up in earnest, with a view of competing successfully with the celebrated French raiser, M. CALVAT, it was thought," says Mr. POCKETT in *The Garden Gazette*, "by some of my friends that I had gone 'dotty.' However, I decided to leave no stone unturned for three years, with a view of seeing how my varieties would stand when placed in competition with the (then) greatest raiser in the world. To cut it short, the object was achieved in the second year. My friend, Mr. W. WELLS, of Earlswood, Surrey, England (to whom I consign my varieties), was able to take them over to the great Paris Exhibition in November, 1901, for the six days' Chrysanthemum Carnival, and took the first prize and Gold Medal for novelties. I need not tell you that they also obtained the highest honours in England. This success has induced many other raisers in different parts of the world to put more energy into the raising of these popular flowers, and it is not my intention to be caught napping. I have at present nearly 3,000 seedlings to be flowered this coming season, besides testing many of the recently imported varieties. There is one thing I cannot understand, viz., why there is not more time devoted to the improving of various flowers by those who have time at their disposal. A few years may not give the required results, but by perseverance we could do wonders in raising varieties better adapted to our soil and climate; and why not export as well? I see no reason why capital should not bring in a good return if judiciously applied to the raising of seeds and plants for export, besides finding healthy employment; and probably it would bring Australia more prominently before the horticulturists of the old world."

UTILISATION OF HOME PRODUCTS.—Dr. MORRIS, who is exerting his energies so laudably in the promotion of applied botany in the West Indies, points out in the *Agricultural News* (Barbados) that in the days when sugar-growing was very profitable, everything was sacrificed to make way for the planting of Sugar-canes. Then sugar sold for £20, or even £30 a ton; now it is only worth as many dollars; nevertheless, enormous amounts of food-stuffs and other articles are imported, a great part of which could and should be produced locally. The high value of molasses as a feeding-stuff for horses is pointed out, and yet molasses are sold at very low rates in the islands, whilst thousands of bushels of high-priced Oats and corns are annually imported from the United States.

PUBLICATIONS RECEIVED. — *Nature Notes*, December.—*The Parks of Sydney*: some of the Problems of Control and Management. By J. H. Maiden. Reprinted from the Journal and Proceedings of the Royal Society of New South Wales.

DR. PRIOR.

IT is a commonplace to lament the divorce between Literature and Science. Scholars are, it is said, as a rule, unscientific; scientists are, if not illiterate, yet behindhand in the grace of thought, speech, pen, which familiarity with classical and modern literature is supposed to yield. There are on both sides eminent exceptions, and one of these has just passed away in the venerable Dr. R. C. A. Prior. An accomplished and acknowledged botanist, he was also a proficient in Greek and Latin, conversant with French, Italian, German, with Spanish, Dutch, and Anglo-Saxon; while his fine translation of Danish ballads shows his minute acquaintance with the Norse languages, no less than his power of felicitous expression. To all botanists he is known by his *Popular Names of British Plants*, a book not alone technically valuable, but stored with unfamiliar quotations, with philological insight, with mediæval and modern folk-lore.

A descendant of the poet Prior, whose portrait hung in his dining-room, he was born in the *annus mirabilis* 1809, which gave us Gladstone, Tennyson, Kinglake, and a host of notables besides. He went to Charterhouse and to Oxford, tracing much of his later intellectual enthusiasm to the kindling of his mind by Dr. Buckland's geological lectures; took his M.D. degree, and for some time practised as a physician; but coming into possession of a handsome property, he abandoned professional life, and devoted himself to his favourite pursuits. He spent the London season at his house in the Regent's Park, being a zealous member of the Linnean and other Societies, and also keenly interested in Art.

His country seat was at Halse, eight miles from Taunton. It was for many years a standing puzzle to him why a village in which no Hazel trees grew wild, should have been called Halse or Hazel, until building excavation laid bare a mass of Hazel bushes, the nuts blackened but retaining their form, which had been covered up by some diluvial disturbance. On first settling in Somersetshire, he was ignored by the exclusive rural gentry, as an unrecommended stranger, until Dr. Metford of Taunton, father to the inventor of the Lee-Metford bullet, took pains to introduce him everywhere; his worth was at once perceived, he was made a magistrate, and fell with much complacency into a country gentleman's life. For many years he travelled annually into all parts of Europe (as well as at the Cape), amassing a splendid collection of dried plants, which I had often the privilege of examining. His garden contained few rare living plants, but he was proud of his success in propagating the uncommon and untractable Cornish Moneywort; it hung from his greenhouse shelves in a series of small pots, which he would present to horticultural visitors.

It was at Dr. Metford's that I met him first, about the year 1868. He showed me much kind attention, and I was fortunate enough soon afterwards to give him pleasure by an appreciative review of his book in an early number of *Nature*. Thenceforward we often met and corresponded. He was an admirable host, selecting his dinner-guests with special care, so as to ensure general and lively talk. I suppose his duller acquaintances had, like the Bath tradesmen in *Pickwick*, amalgamations of their own, for I used to meet at his table none but clever and entertaining people. To the last, I never saw him without his recalling to me one particular occasion, when the talk was so good and so well sustained, as to keep the ladies from the drawing-room almost to the end of the evening. Nor could any man talk better than himself; his erudition was endless, and he had all his recollections at command. I remember relating an anecdote which brought in an allusion to Jean Paul Richter's *Siebenkäs*; the lady next him asked who was Siebenkäs, and he poured forth a perfect little abstract of that delightful but not universally read book. Never was an intelligence more alive, more searching, more persistent in exhausting any subject which attracted him. His letters to me cover bewildering varieties of topic, sometimes drolly incongruous. He seeks my opinion as to the authorship and date of the Benedicite; and wishes me to write out for him the once popular song, "Unfortunate Miss Bailey," of which he has met with a Latin translation. Then come queries as to the circular spread of dodder in Clover fields, the law which governs the occasional spiral growth of Larches and Beeches, the genesis of the "Broom-squires," an outlaw race of semi-savages which at one time inhabited the Quantock Hills. He is writing poetry, and wants authority for certain words, adding an excursus on the difficulty of obtaining triple rhymes. He wishes to know if I do not think the intellectual value of memory to be overrated, citing two of his class-fellows at Charterhouse, Sir Charles Trevelyan and Mozley of the *Times*, who, with notoriously bad memories, made their mark on the world. More than once he begs for comments on his theory that the cradle of the human race was in the southern hemisphere. Then he speculates on the limitation which would have supervened on human literature had the Papyrus not been utilised, on the relation of science to the Bible, on the modification of the Spanish national character during the last three centuries by the Roman Catholic religion. In the activity of his brain and its tenacious recurrence to its themes he reminds me of Gilbert White, only Prior's curiosity was omnivorous; White's, happily for us, confined to a single subject and a single place. From time to time he put out leaflets, the reprint of an admirable paper on plant collecting and preserving, which he had written in 1868 for a short-lived magazine called *Eyes and No Eyes*; disquisitions on the edible Ballota Acorn, and on errors in the popular names of plants; an English versification of the *Dies Iræ*, for which he solicited, and condescended to accept my suggested emendations. One curious episode in his career was a frantic attachment to croquet, which he made for some years not so much the relaxation as the object of his life. Ordinarily large-minded and tolerant, he resented with strange bitterness any depreciation of its merits as a game. At one of his garden parties, a merry maiden in her teens made fun of it, and pronounced it slow. He took her mother aside and warned her solemnly that such levity, if repeated, must interfere with the young lady's social chances and repute. On this craze was built his intimacy with Mark Pattison, as dexterous, though not so fanatical a croqueteer as himself. They might often be seen at Oxford in the Long Vacation tiring out successive relays of partners on the Park's ground.

It was very long before decay abridged his vigour of mind or body. "I am eighty-two," he writes to me, "and do not feel my age." But by degrees the malady which Dean Merivale calls "creeping octogintiasis" began to hold him in its clutch. I learn from him that he has ceased to go to Halse; then that he has deserted scientific meetings, and has taken his name off the Athenæum. In 1897 he for the first time employs an amanuensis. In 1898 he has become decrepit; like Echo, he has no part of his frame remaining to him except his voice;" in the following year that too is reduced to a whisper, though still, in my annual visits to him I found his whispers interesting and instructive. His latest letter to me was on March 10 in the present year; even in that he speaks about the habits of insects, but goes on to excuse brevity by his inability to dictate without difficulty. His brain was clear, and his heart was kind to the last. Feeling, as he said, that he had enjoyed more than fourscore years of unbroken happiness, he bore their inevitable eclipse with exemplary dignity and patience. He died on December 8, in his ninety-fourth year. *Corycius senex.*

HYDRANGEAS AT OLD COURT, CO. DOWN.

THE accompanying illustration (fig. 154) shows a portion of Lord De Ros' garden at Old Court, which is copiously planted with Hydrangeas. The species seen in the picture is H. Hortensia, and although the soil in which they are planted is similar, viz., a sandy loam, resting on a gravelly subsoil, the colours vary from blue to pink. The garden, which is well sheltered, is situated about 20 yards distant from the shores of Strangford Lough, and about 15 feet above high-water mark. The figure in the photograph is that of Lord De Ros, K.P., premier Baron of England, and the photograph was taken by Lady De Ros, who is an enthusiast in horticultural matters. *J. B. C.*

COVENT GARDEN MARKET.

THE great market of Covent Garden, the market of the world, presents now a very different appearance to what it did when it was first known to the writer, in the late forties of the past century. Then, what is known as the "long market" was open to the sky, as was also that part which is called the Apple market; now, both these sections are covered with glass, and form two avenues of really fine dimensions. During the tenure of office of the present Superintendent, Mr. Assbee, extensions and additions have been made, and are still going on. The one now in course of erection on the south side, in a line with the flower market in Tavistock Street, is called the French market, erected to meet the requirements of the demand owing to the enormous development of the trade.

Fifty years ago, Bananas were unknown to the writer. Tomatos were only grown by a few gardeners in the neighbourhood of Fulham, and then only in small quantities, and not of such quality as are now produced. Cucumbers used to be packed or laid, six best fruits on a flat punnet; Strawberries in reputed pottles, a most inconveniently shaped basket, being very narrow at bottom, widening at the top, with a cross handle, holding about half a pound; some few in punnets holding a pound. This pottle basket has long died out, and few of the present generation, I imagine, have ever seen one. Grapes used to come in punnets containing from 2 to 4 lbs. in each. Pine-apples, chiefly Queens, were grown by a market gardener at Chelsea, and used to sell at about 10s. per lb., so that a small fruit would cost a sovereign; now all this is changed in a marvellous manner. Bananas from Teneriffe and Jamaica come continuously in thousands of bunches. Tomatos from various parts in thousands of boxes; those now coming into the market are from the Canaries. The flower trade has grown beyond all imagination, and is still increasing. The flower market is one of the sights of London in the early morning; it closes at 9 A.M.

Many of the baskets formerly in use have died out, notably the upright reputed bushel with two handles at the top, with cord loops, and tapering to the bottom; the "maund," a similar basket of double capacity; the "junk," and "half-load barge," &c. These, like the head-gear of the old market porters—the leather hat—are not seen now, and not many of the old form of porter's knot. Many of the old customs of count and weight are still observed, thus: a "cwt." of Cobs or Filberts is one hundred pounds, a "tally" is sixty, a "score" of Lettuce is twenty-two, a "hundred" of Oranges or Lemons five score and ten, a "sieve" of Cherries or Currants twenty-four pounds, a "bushel" of Potatos fifty-six pounds. The following are the measures now in general use: the "pad or pot," an oval basket, with lid and two handles at the top, containing a cwt. of Potatos, for which it is in use when Potatos are young, then for Cauliflowers or other vegetables, as required. The "bushel" has half the capacity of the pad, and is used for Potatos, Peas, Beans, Spinach, Artichokes, Beetroot, Apples, Pears, &c. Then comes the half-bushel or "sieve," this basket is in more general use than others, being at all times in requisition with Kidney Potatos first digging, Peas, Beans, Gooseberries, Currants, Cherries, Plums, Apples, Pears, Cobnuts, &c. Next, the peck or half-sieve, many of which are rimmed, and are used for Strawberries, and will hold from 10 to 12 lb. The flat ones are used especially for Tomatos, and it is usual to put 12 lb. in each. The "bushel-flat," a square basket, with lid and handles, is in general use for Cucumbers. The Grapes are packed in flats, in one layer of from six to twelve bunches, and weighing from 10 to 13 lb. or more, according to size. There are a few crates also in use, containing about three bushels. The "sack" for Potatos holds 1½ cwt. (168 lb.); the "bag" of thinner material is largely used for Peas, Beans, Turnip-tops, Turnips, Carrots, Parsnips, and Onions, the last four of which should weigh 1 cwt.

The following fruits and vegetables may now be found on sale: English Grapes, the finest in the world, always to the front, are Alicante, Gros Colmar, and Canon Hall Muscats, of fine quality and size of berry, which can be had by the ton if required; also that well-known old sort Almeria, which come in barrels packed in cork-dust; as well as Belgian and other varieties, and a few Melons. The Apples consist of Ribston, King, Cox's Orange and Blenheim Pippins, and others, and for flavour they are unequalled, but the great bulk consists of foreign produce. Of Apples there are Californian in boxes, containing about 40 lbs. of various sorts, Canadian barrels, Nova Scotian, &c. These are generally fine fruits of good sorts, such as Ribstons, Newtown Pippins, and others. The Pines come from St. Michael, are fine fruits, often exceeding 5 lb. and occasionally 6 lb. in weight, chiefly the smooth Cayenne; they come all the year round. There are a few Persimmons, a Tomato-like fruit, which like the Medlar requires to be bletted before it is eaten. Custard-Apples, Grape-fruits, Lychees, a little nut-like fruit in packets of a lb. French Pears come in crates of one or two layers, including fine Glout Morceau, &c. Oranges in variety, viz., Denia, Murcia, Valencia, Jaffa, Jamaica, Teneriffe, Tangierine, and Mandarin; of Lemons, there are fruits from Naples, Malaga, and Messina. Of Nuts, there are English Cobs; others are foreign, together with Almonds, Brazils, Barcelona, Chestnuts, Spanish, and Walnuts. Bananas and Tomatos, Rhubarb, and Cranberries in unlimited quantity.

Of vegetables now on sale, there are Asparagus, Artichokes Globe and Jerusalem, dwarf Beans, English and Madeira Chow-Chows (Sechium edule), new Kidney Potatos, and plenty of old; Main Crop, Cauliflowers, Seakale, Spinach, Brussels Sprouts, Broccoli, Cardoons, Chicory, Celeriac, Salsafy, Celery washed and unwashed, chiefly from Lincolnshire and the Fen district; Batavian and other Endive, Lettuce, small Salad

FIG. 154.—HYDRANGEA HORTENSIA IN THE GARDENS OF LORD DE ROS, OLD COURT, STRANGFORD, CO. DOWN.

Cress, Cucumbers, Beet-roots, Watercress, &c. The roots also are plentiful and good, and reasonable in price. Most Onions are foreign, coming in bags and cases; Carrots, Turnips, Parnips, &c., come in bags and bunches. *T. P.*

LAW NOTES.

EMPLOYER'S COMMON LAW LIABILITIES.

IMPORTANT QUESTION AS TO THE TESTING OF LADDERS.

At the Brompton County Court (London) last Friday, before Judge Stonor and a Jury, a gardener brought an action under Common Law against a firm of gardeners and florists, the plaintiff claiming £50 damages, in respect of personal injuries, said to have been sustained through negligence on the part of the defendants or their servants.

Plaintiff's counsel explained that his client had been employed by the defendants, and on September 9 last was sent to trim some trees at Kensington. The plaintiff was using a ladder which had been provided by his employers, when one of the top rungs broke as he stepped upon it, and he fell a distance of some thirty feet to the ground. By the fall plaintiff's head and back were injured, one of his knees was sprained, and he sustained a severe shock to the whole system. In consequence of the accident the man was out of work for seven weeks. The plaintiff substantially bore out his counsel's opening statement.

The Judge, in directing the jury, said there could be no doubt that gardeners, florists, and others, who provided ladders for their men to use, were bound to keep them properly tested. It was for the jury to say whether the defendants in the present case had been guilty of negligence in regard to the testing of the ladder in question, while they also had to consider whether the plaintiff had been guilty of contributory negligence.

The jury answered the questions in favour of the plaintiff, assessing the damages at £15. His Honour gave judgment accordingly, and allowed costs.

QUEENSLAND.

MANGO CULTURE.

It has often occurred to me that the Mango could be cultivated under glass in England to much more advantage than either Apples or Pears, and if they flowered about the same time in the Old Country as they do here, the crops would be progressing through the summer, and ripen in November, December, and January. The tree is remarkable in its flowering vagaries. I have known it (two years ago) to begin flowering at the latter end of the month of May, and continue to flower till October — the first and second crop of flowers yielded no fruit; the third flowering being followed by a good crop. The tree grows a very close head, every shoot has a truss of flowers, and I have counted as many as 600 individual flowers on a truss, and the weight of the flowers bend down the branches as much as a full crop of fruit. The tree is a very quick grower, and will bear the third year from seed. I have forty-two trees surrounding my place; many of these are 35 feet high, with quite as much spread of branch; stems 20 inches diameter. These trees have been planted only twenty-eight years. Last season the crop was very poor; but this season there is a great show, and if ten per cent. come to maturity that are setting, there will be a great crop, and everybody, including the cows, will have a grand time; tons of fruit will be left to rot on the ground. The "fruit-fly" does not trouble the fruit, but the flying-foxes, which are large bats with wings extending from 2 to 3 feet, destroy an enormous quantity of fruit—not so much what they eat, but what they knock down, for in the morning the ground will be literally covered with bitten fruit. The fruit here is of no value, except for family consumption, and what are eaten by the cows, as there is no market for them. Boys and girls come out of the town and carry away loads of them, but no one thinks of buying them. I have noticed in the *Gard. Chron.* that fruit has been introduced into London, and has been thought a great deal of, but I am quite sure that no one can have the least idea of what a Mango is that has been brought from the Cape or the East or West Indies. The fruit, to be in perfection, must ripen on the tree, and if gathered even a week before it is ripe, it is anything but desirable; but when perfectly ripe, it is undoubtedly most delicious. With few exceptions, all that are grown in this district are seedlings, and although many of them are large and rich in flavour, their fault is that they contain a large amount of fibre; whereas the standard Indian sorts are fibreless, and much superior in sweetness and flavour. When the Government Nursery was established here, I was appointed manager; we had two Wardian-cases from Calcutta, containing sixteen plants each; two were dead, and as they arrived a considerable time before the ground was ready to receive them, several of them died after planting. They grew very well, although not so fast as seedlings, and soon began to bear, so that I had the opportunity of noting their various qualities; and the following list comprises the best of them—they are all good, and what little difference there is, is indicated by the position in the list. In the East Indies, Alphonsa bears the same relation to Mangos that Cox's Orange or Ribston Pippins do to Apples in England, but Alphonsa is a shy bearer. If I had to plant only one Mango, I would prefer Kestapal chotta, as the quality is about the same, and it is a great bearer.

List.—Alphonsa, Kestapal chotta, Kachehaee, Chuckukeea, Bangalore, Kasta palburra, Dalhugny; Goa is fine, but has a little fibre; Kasta palburra has a little acid, which makes it very pleasant; Bhandoorea is another good one, and a great bearer.

As they cannot be successfully propagated by either budding, grafting or layering, inarching is the only mode of increasing stock. I understand in the E. Indies moss is tied round the root of the stock, and it is hung up in the tree and inarched, and they will take during the "wet season;" but here, in this dry climate, they require about six months to "take;" but I have no doubt that in the moist propagating-houses of English nurserymen they would soon "take;" and of course the coarsest-growing seedlings make the best stocks. The fruit-stones from the E. Indies would have to be kept moist, for if allowed to become dry, they soon lose their vitality.

One good use we make of the fruits here is to stew them, beginning when they are about a third grown, and use them till they begin to ripen. When stewed, they much resemble the Gooseberry fool of the old country. I have no doubt the day will come here when they will be made use of, both for chutney and for bottling, for when taken just before they are quite ripe they are very good, and look beautiful in white glass bottles.

I have no doubt the fruits would take well in all countries where they cannot be grown out-of-doors. I hope some enterprising nurseryman or private gardener will make a start, as I am quite sure, when once the ripe fruit has been tasted, the culture would soon spread. I expect they could be had from the West Indies; but I would by no means attempt to grow seedlings *D. Buchanan, Mackay, Queensland.*

HOME CORRESPONDENCE.

PLANT BREEDING.—In reference to this subject, I quite agree with Mr. C. T. Druery, *Gardeners' Chronicle*, December 6, p. 422, that we shall never be certain of the effects of hybridisation, until we first find out by experiment the natural range of variation possible under cultivation to, or in the parent species employed. We must first see what simple cultivation can do, then cultivation and selection, then cultivation and cross-breeding the varieties of each species, and then finally having learned the potentialities or variable possibilities of the parents, we may further experiment by hybridisation. The Chinese Primula, the Cyclamen, the Gloxinia, the Hollyhock, garden Peas, and many other garden flowers and vegetables, owe nothing so far as we know to hybridisation, and still different strains of these flowers, &c., are stable or "fixed," enough to come true from seed. On the other hand, hybridisation even in our own time has worked wonders amongst Orchids, Begonias, Cannas, Gladiolus, and many other things. All the progress made in the improvement of cereals, such as Wheat, Maize, Oats, and Barley, have simply been brought about by cultivation, cross-fertilisation, and selection, and not by the hybridising of any two species together. The same is especially true in the case of cattle and poultry. The main difficulty is in being sure what a distinct species really is, and how long a time has elapsed since it naturally appeared, possibly as the result of Nature's cross-breeding? All our surmises and speculations are simply "guesses at truth," and quite as likely to be wrong as right; this being so, all we can be certain of are the results of direct experiments. It is quite possible that some spontaneous varieties or "sports" may be reversions, or examples of atavism, as when a boy resembles his great-grandfather, or a cross-bred Chrysanthemum goes back to a position mid-way between its parents. On the other hand, there are bud variations on many species, that so far as is known, have never been cross bred, so that we must here look for some other cause. We are just as must at sea as to the action of certain stocks for different varieties of fruit trees as grown on different soils and in different climates. There are no sure and certain rules, and every fruit-tree grower has to experiment for himself, and then his knowledge is often quite opposed to the experience of his nearest neighbour! I quite agree with Mr. Druery that so far we know little or nothing as to the apparently spontaneous origin of many new forms of vegetation, but that cultivation, selection, cross-fertilising, hybridism, and budding or grafting, all may cause variation under certain conditions is a fact abundantly proved. One cause of variation in plants often overlooked is, I believe, irritation, and now and then friction. Some forms of fasciation are due to friction, and hosts of the so-called plant galls are due to punctures and possibly the injection of some subtle fluid by which the normal growth and development of the plants tissues become altered, as I said before, probably by some irritation that excites the action of the protoplasm in a special manner around the focus spot or area operated on by the exciting cause, insect or fungus, as the case may be. The last word on such a perplexing and complicated question like hybridism, will only come after many many more years of well directed experiments and careful observation. *F. W. Burbidge.*

THE NATIONAL CHRYSANTHEMUM SOCIETY AND ITS JUDGES.—With the internal affairs of the National Chrysanthemum Society the general public have little concern; but when something occurs in connection with those affairs that may have a prejudicial influence on the action of other societies, then such matters do concern all horticulturists. No doubt it was with some such belief your first correspondent, "A Country Member," wrote to you on the subject of the appointment of members of the Executive as paid judges at the National Chrysanthemum Society's shows, and doubtless desired that a practice fraught with unpleasant possibilities should be speedily checked. So far as my experience goes—and it is a pretty wide one—the

National Chrysanthemum Society stands alone in this practice; and it is quite welcome to enjoy such isolated distinction. But when apologists for this objectionable course seek to better a vicious practice behind the action of the Royal Horticultural Society, the National Rose Society, and even if they choose, the National Auricula, Carnation, and Dahlia Societies, these persons must understand that the comparison is not on all fours at all, as none of these bodies pay their judges, but obtain from them purely honorary service. None know that better than the officials of the National Chrysanthemum Society. Will they require from any members of their Executive they may in the future appoint as judges the same purely honorary service? If those so selected will not give it, then is it but too evident that, whilst love and devotion to their societies dominates the minds of the members of those bodies I have mentioned above, in the desire to obtain hard cash, the National Chrysanthemum Society's members stand alone amongst all those societies named as wanting in this love and devotion to their favourite flowers. If, as said by one apologist, the action thus complained of is a "scandal," then the quickest way to cleanse the Society of it henceforth is to refuse to select members of the Executive as judges in future. *A. Dean.*

BLACK CURRANT BUD-MITE.—When I came to Shipley four years ago, I found that the Black Currant bushes were infested with the bud-mite to an alarming extent—in fact, there was scarcely a bud of normal size, and I learned that for years past the crops had completely failed. Seeing that good results were never to be expected from such bushes, they were cleared out, burned, and a new plot, some 200 yards away, was planted with new bushes, obtained from Kent; since then the Currant bud-mite has not appeared, and fruit has been abundant each year. This experience differs from that of Mr. Fletcher, recorded on p. 442, but the cases differ, in that we have no near neighbours who grow Black Currants, infested or otherwise, and the probability is that had Mr. F.'s neighbour rooted out and burned his bushes instead of cutting them back, neither would be at all troubled with the mite—that is, supposing the plants newly brought-in were quite clear of the pest. I can, however, substantiate Mr. Fletcher's assertion in regard to the efficacy of picking off affected buds, as in Suffolk I was enabled for some years to hold the pest in check, and I lost no crop, by having the swollen buds picked off. My method was to have the bushes picked over three times at intervals equally divided between the fall of the leaf in autumn and the bursting of the buds in the spring. The buds were collected in tins, and brought to me to burn, and though there was a recurrence each year, there was no increase, and as above stated, the actual results as to crop were good. *J. C. Tallack.*

THE LOGANBERRY.—In reference to W. C. Leach's enquiries in reference to the Loganberry, I find that the plant shows no tendency to climb, and it is simply a Bramble, a cross between a Blackberry and a Raspberry. It was introduced by Mr. Logan of America, and Messrs. Fell & Co., nurserymen, Hexham, were almost the first to distribute the plant in this country. My mode of cultivation here is to secure the long shoots to a trellis, these being quite 10 feet in length, and allow a space of 9 inches between the shoots. The best time for fastening up these growths is after the fruit is all gathered, and remove the spent fruiting wood, which is of no further use, training the young shoots in its place. When the plant is strong it will throw up eight to ten strong growths, but five or six are enough. I received other varieties of Brambles last autumn from the nurserymen, which were planted immediately upon coming to hand, and have now some strong growths some 8 feet in length, which will bear fruit this coming summer. Several lots have been received from nurserymen (the prices varying according to age of plants), but in no case have many canes come with the plants. The fruit of the Loganberry is excellent for dessert, cooking, or preserving. A few applications of manure-water are beneficial to the plants during the growing season. *W. Fulford, Castle Eden Gardens.*

THE ROYAL HORTICULTURAL SOCIETY'S PROPOSED NEW HALL.—When I saw the plans and elevations of the proposed new Hall, I certainly came to the conclusion that the area of the "exhibition hall" was far too small, and, worse still, that it was so hemmed in by other properties that there was no chance of enlargement at any future period, when the funds of the Society might reasonably be expected to be in even a more flourishing condition than they now are, and the greater space required for exhibits. If the Council have not already, in their haste, driven their stake too deeply into the ground, I would suggest to "call a halt," and let the very handsome capital now in hand, and the yearly increase of income, accumulate for a few years more, when a Hall worthy of England, and second to none in the world, might be secured, and situate in some district so sensibly suggested by Mr. Cannell, where some grass and shrubbery would not only add to the comfort of visitors, but also to the better showing of exhibits when placed there; and the exterior of the building made worthily representative of what may be expected to be going on within. As the finances of the Society are increasing so fast and so handsomely under the wise management of its indefatigable secretary, I would rather suggest leaving well alone than resort to the thumb-screw business of squeezing the Fellows for additional subscriptions, some of whom might be willing, whilst others might object, and some on this account might fall out altogether. As the Drill Hall has so far answered the purpose so remarkably well, and through its medium the Society has found itself in so flourishing a position, I would rather suggest not to too hastily break up the bridge which has carried us so safely over, but to retain it a little longer, whilst a bridge of adequate dimensions is being built. If exhibitors would confine their exhibits to reasonable proportions, the Drill Hall might be a sufficient medium for yet a few more years. The old Council of the Society burned their fingers years ago, in the creation of new gardens at South Kensington; this ought to be a caution not to rush too hastily in committing themselves to the building up of a place which does not commend itself to everyone as a fit and proper permanent home for a Society, for which even we neglected and belated country folks, notwithstanding all our huffs and cuffs, have a kindly paternal affection. *W. Miller, Berkswell.*

FICUS PARCELLI.—In the issue of the *Gardeners' Chronicle* for December 6, p. 413, I was pleased to observe mention made of the good qualities of Ficus Parcelli. I have grown this plant for several years, and found it very useful for house and table decorations. Cuttings inserted in small pots in early spring, plunged in a brisk bottom-heat, potted on when well rooted into 5-inch pots, make fine plants in the course of a few months. Before employing plants for decorative purposes in the mansion, it is advisable to remove them to a cooler temperature for a week or two than that in which they have been growing, as is done with other stove plants similarly employed. *J. Murray, Sopley Park, Christchurch.*

FIG. 155.—A FULL-SIZED MANGO TREE. (SEE P. 462.)

CROSS TRELLISES FOR PEACH-TREES.—Referring to the notes recently published on the above-named subject, please permit me to ask if the system has been practised by any of your northern readers. If so, would one or more of them give us their experience in your columns. Several visitors here have mentioned the matter to me from time to time. Except in large span-roofed houses, where standard trees might be planted in the centre of each house, I have always held to the belief that the only space

worth covering with Peach and Nectarine trees, was the area of the roof-glass. I am assuming that really good fruit was the object aimed at. I know of two places south of the Trent where cross trellises are in use; an old friend of mine has often told me that the system answers well, and he is gardener in one of the places. Somehow he has forgotten to send me a sample of the fruit as promised. *H. J. C., Grimston, Tadcaster.*

THE GARDENERS' BENEVOLENT FUND.—With the next election to this fund, so near as January next, appeals on behalf of candidates for election are now being made. Judging by the nature of these appeals, and the age and general condition of the candidates, it seems in the matter of constituted charities difficult to find one to which it is possible more wisely and fitly to contribute than is the "Gardeners' Benevolent." When it is found that gardeners have passed the allotted threescore years and ten, have become physically incapable of labour from age, or from that and illness combined, and have been over long years of service faithful, upright, sober, industrious men, in what direction is it possible to look for worthier objects of generosity? Apart from charitable feelings, which must alone in relation to the Fund and its many clients, dominate the minds of many subscribers, it is some satisfaction to find that not a few who may possibly become recipients of the Fund, have learned to regard subscriptions to the Fund as an excellent investment against old age. How happy may the gardener be in the declining years of his life if he has been a long subscriber, if circumstances should none the less enable him to live in comfort without coming on to the Fund. He has the double satisfaction of knowing that whilst not in want himself, he has been through life helping to furnish provision for others less fortunate. Not less happy may be the gardener who having subscribed for some years realises that his donations in the past give him a title to election on to the Fund beyond others are entitled to who have refrained to give the Fund any contributions. In two cases brought to my notice, one candidate has been a subscriber for twenty years, and one for fourteen years. Both these men are now aged, and too infirm to work. It is not possible to imagine that any amount of canvassing could secure the election of any non-subscriber in preference to old subscribers like these. To allow such to be the case would be to put a premium on non-subscription. Out of the some 10,000 or more gardeners in the United Kingdom I do not know how many are annual subscribers to the Benevolent Fund. That any should not be who can possibly afford the contribution of one guinea yearly, remembering what a splendid investment that guinea is towards securing in helpless old age a pension of £20 yearly, is difficult to understand. The Fund practically solves in a limited way the problem of Old Age Pensions, and in a way that does not cause humiliation. The Fund blesses those who give and those who receive. I am sure the executive of the Fund would like to see the New Year of 1903 opening with a huge addition to the list of gardener subscribers. *A. D.*

RUST ON MINT AND CHRYSANTHEMUMS.—In reply to your Editorial query on my note, I may say that it was the Puccinia on the Mint. I could find no Æcidium, although I looked for it. Your correspondent, "F. K.," in last week's issue may like to know that, although I suffered severely last season, I have kept all my Chrysanthemum plants free this year. They were well syringed in the spring with a solution of sulphide of potassium, and I mixed sulphate of iron with the potting-soil at the rate of about 2 ozs. to the bushel from the first shift onwards. *Arthur Mason, Oakwood, Walton-on-Thames.*

THE LOT OF GARDENERS.—I am glad to see some of your correspondents trying to do something to better the hard lot of our more unfortunate brethren. Not only is it a case of the supply of gardeners being greater than the demand for them, but the low wages which the gardeners will accept. I refer to men who really know their business. I will relate to you an experience of mine when I had to lay out a large ground. Navvies could not be had under 7*d.* an hour, but landscape gardeners could be obtained for a guinea a week knowledge of gardening being at a discount. I, like many more, long to see something done to improve the hard lot of many in the gardening profession. Some time ago, when looking for work, I found the Superintendent of a park very obliging, as in some cases when people wanted a gardener they used to send to him for one. This, I think, would be a good idea if extended. By the way, I observe the London County Council is establishing schools of gardening, garden libraries, &c., so perhaps the time is not far distant when they may do something to improve the hard lot of gardeners. *H. P.*

SINGLE CHRYSANTHEMUMS.—That these are eminently suitable for use as cut flowers, none will dispute, and the plants may be grown in comparatively small pots for standing in the dwelling-house, or as front row plants when grouped in the conservatory. There are two varieties growing here that are worthy of commendation. One is Lord Methuen, and the other Amy Huntley, the former being a pure white variety, the latter russety-red, with a ring of pale yellow around the disc. The former grows rather tall, but by cutting down the plants at the end of May, nice bushy plants may be had. The tops if removed will root readily if inserted in small pots placed under a hand-light, and shaded from the sun for two or three weeks. When they have rooted, pot them singly into 5½ and 6½ inch pots, removing them to a cold frame for ten days, until they are established. They may be then placed out-of-doors, and grown on as in the case of the earlier plants. No stopping or disbudding should be practised, but the plants allowed to grow freely, staking them when necessary, and affording manure-water, or a fertiliser when the pots are full of roots. Lord Methuen flowers late, and is valuable on that account. I send a spray or two taken from cuttings put in at the date mentioned above [which are excellent, ED]. *J. Mayne, Bicton Gardens, Devonshire.*

FERTILISATICN OF SWEET PEAS. — Concerning the notes on the fertilisation of Sweet Peas at p. 371 of the *Gardeners' Chronicle* issue for November 22, 1902, may I be allowed to relate that I purchased three different varieties of Sweet Peas, namely, Lovely, Emily Henderson, and Mars, intending to sow them separately; but finding afterwards that I had not the space needed for so doing, I sowed them in a mixed state. I then gathered the seeds of each variety, and sowed them side by side the next year. The bees came to the flowers in search for honey or pollen, but soon left them alone; and on my looking for a reason for this, I found the insects could not get into the flowers, consequently it is an impossibility for fertilisation by bees or other of our insects to take place. In the third year these Sweet Peas came quite true from seed taken from the second year's crop of flowers, not a shade of colour being different. I might say that I had then ten hives of bees on the place. *S. Knight, The Elms Gardens, Bently, Hants.*

CALANTHES FLOWERING FROM THE TOP OF THE BULB. —In your "Answers to Correspondents," November 29, you state there that it is not a common occurrence for Calanthe to flower from the top of the bulb. I would like to say that it occurs annually here upon Calanthe Veitchi. This year we have had some very good spikes from the top of the bulbs, as you will see by the specimen enclosed; this bulb has carried a very fine spike at its base as well, with over thirty flowers upon it. The spike at the top had twenty flowers. *M. E. Mills, Croydon.*

BUFFALO CLOVER.—I read with some surprise in your issue of Nov. 29, p. 400, the association of this name with that of Lupinus texensis, said to be the adopted State flower of Texas. The name in question was long since given to Trifolium reflexum, L., a native of the Southern States, including Texas, but occurring as far north as Kentucky; and the popular name was adopted by A. Gray in his *Botany of the Northern States of America*, as well as by Curtis in his *Manual of the Botany of the Southern States.* The plant was described and figured in the *Botanical Magazine*, vol. 63, t. 3471, as long ago as 1836, by Sir W. J. Hooker, who also adopted the name of Buffalo Clover. In the face of these facts, which must be known to some Texan florists, it is strange that the name in question should be so misapplied. In some Californian publication I have seen it stated that the State flower of Texas was the Lupinus subcarnosus, Hook., a closely allied species, from which the L. texensis may not be specifically distinct. *W. Thompson, Ipswich.*

"INDEX KEWENSIS."—In reference to your note under this heading on p. 439, I may remark that it seems somewhat curious that the supplement of such a work, which rightly claims to be the highest universal authority on plant names, is not published, in the ordinary sense of the word—by which I understand obtainable through a bookseller—as soon as it is issued. Having seen a notice of it two or three months ago, I wrote to the Oxford Clarendon Press, where the original four volumes were published, asking for the supplement. The reply was, that it was only to be obtained by application to some private address which was given to me, and not from any bookselling firm. *C. Wolley Dod, Edge Hall, Malpas.*

THE SWEET POTATO, A PALATABLE VEGETABLE, AND THE YAM A POSITIVE LUXURY.—During the period of stress which our sugar-growing Colonies in the West Indies are passing through, pending the abolition of the foreign sugar bounties, the attention of the planters has naturally been given to other produce. In Barbados great success has been achieved in the cultivation of Sweet Potatos and Yams of the very best quality, and an endeavour is now being made to introduce these into this country. The Sweet Potato is a cheap and palatable vegetable, but a good Yam is a positive luxury. During a long residence in London, I imported several barrels every year for my own use, and out of the numerous guests who tasted them at our table, there was not one who did not highly appreciate them. I may add that here the flavour is even more delicious than in the West Indies, as butter, which is a vital ingredient in a well-cooked Yam, is so much better. I am returning to Barbados almost immediately, but any information on this subject will be given by Messrs. W. Pink & Sons, of Portsmouth, who are importing regular supplies. Receipts for various ways of cooking both Sweet Potatos and Yams are sent out with every parcel. I shall esteem it a great favour if you will kindly insert this letter in your journal. *F. M. Alleyne, Member of the Legislative Council of Barbados (Junior Carlton Club, London).*

DENDROMETER.—I may have been wrong in suggesting that Mr. Sang was probably the first to apply the term "Dendrometer" to a height-measuring instrument, but "D." does not settle the question as to who first used it. He says Mr. Duncombe "was always described as the inventor of the dendrometer," but he does not say when the term was applied to his instrument. I have seen a number of "dendrometers," or "hypsometers," but I am not acquainted with the one invented by Mr. Duncombe. Perhaps "D." will kindly say how it is constructed? If "D." means that Mr. Duncombe was the inventor of the dendrometer *per se*, he is in error. These height-measuring instruments, although the term dendrometer was not applied to any of them until a comparatively recent period, are very old devices. One, sometimes called the "measuring board of the ancients," is figured in Hutton's *Mensuration*, published about a hundred years ago, and there are others of great antiquity. Almost all of them depend on the same principle, viz., that the sides of similar triangles are proportional. *A. D. Richardson, Edinburgh.*

DECORATIVE CHRYSANTHEMUMS.—In a note on p. 434 of the *Gardeners' Chronicle*, your correspondent "A. D." speaks of raising seedling Chrysanthemums, and incorporates the decorative varieties in his remarks, and notes the small chances of their obtaining official recognition. I think, however, while admitting the observation to be substantially true, that the raisers of the latter, or more truly perhaps the exhibitors themselves, are somewhat to blame in the matter. The fault lies in the fact that a large percentage of these decorative varieties as seen at exhibitions, show severe disbudding has been practised. Now it is well known that disbudding may be practised on some free-flowering varieties to any extent with-

out much increasing the size of the remaining blooms. The simple reason of which is, that the varieties are of small or medium proportions. For example, no amount of disbudding will make a large flower of Source d'Or, yet from the amount of material on a naturally well-grown plant of this variety, it would be expected that severe thinning and disbudding would result in a bloom of large size. It is not so, however. At the same time other varieties quite as truly decorative are exhibited from time to time in the disbudded state. When this fact is more fully realised, the recognition of the best of them will come about in due course. *E. Jenkins, Hampton Hill.*

Obituary.

J. WARREN.—We regret to announce the death of Mr. Warren, for the last seven years head gardener to Viscount Falmouth at Mereworth Castle, on the 11th inst., after a few days illness, leaving a young family of three.

ELIZA MARY (LILY) FENN.—On the 6th inst., at Sydney, Australia, the eldest daughter of Robert Fenn, Cottage Farm, Sulhamstead, at the age of thirty-two. Many of our readers will join with us in offering to our octogenarian friend, Mr. Robert Fenn, sympathy in the bereavement he has just sustained by the death of his eldest daughter as above, so far from home and kindred.

M. MILLARDET.—Not many, we fear, who make use of the now well-known Bordeaux Mixture will recall the fact that this valuable fungicide was first brought into notice by M. Millardet. M. Millardet, whose death at the age of sixty-four is announced, was a Professor in the Faculty of Science at Bordeaux. It was the practice in that district to dust the Vines growing near the roadsides with sulphate of copper in powder, in order to prevent the depredations of passers by. Millardet, about 1883, noticed that the Vines so treated were less subject to mildew than those in the centre of the vineyard not treated with copper. This induced him to make experiments which corroborated his first impressions, and eventually led to the general use of Bordeaux Mixture for the fungous disease of Vines, Potatos, and other plants. It is noteworthy that the three men whose labours have been most conspicuous in dealing with the diseases of the Vine should each of them have been botanists, thus Planchon and Cornu dealt specially with the Phylloxera, and Millardet with the fungous diseases.

THOMAS SIMPSON.—We regret to announce the death of Mr. Thos. Simpson, of the St. John's Nursery, Chelmsford, on December 1, at the age of fifty-eight. Deceased commenced his gardening career on the estate of the Duke of Newcastle, at Clumber. Subsequently he was gardener for many years to H. C. Wells, Esq., J.P., of Broomfield Lodge, near Chelmsford. Mr. Simpson afterwards established the nursery business at Chelmsford, where he made many friends. When at Broomfield Lodge gardens, deceased was an occasional contributor to these pages, and for several years contributed a weekly Calendar upon the cultivation of Orchids. He leaves a widow and two sons, and in future the business will be carried on by the elder son, Mr. Cecil Simpson.

TRADE NOTICE.

WE are informed that Mr. Thomas Lewis, who for many years past has been connected with Messrs. W. Clibran & Son, of Altrincham, has resigned his position with that firm, and has been appointed to represent Messrs. John Waterer & Sons, Ltd., The American Nursery, Bagshot, Surrey. Mr. Lewis will still live at his Cardiff address, Fair Oak House, Roath Park.

SOCIETIES.

ROYAL HORTICULTURAL.

Scientific Committee.

DECEMBER 9.—*Present:* Dr. M. T. Masters, F.R.S., in the chair; Messrs. Douglas, Gordon, Hudson, Veitch, Saunders, Bowles, and Worsdell, Dr. Cooke, Revs. W. Wilks, and G. Henslow (Hon. Sec.).

Dr. M. C. Cooke, V.M.H.—Dr. MASTERS rose and said he had much pleasure on behalf of the Council in handing the Victoria Medal to Dr. Cooke. Dr. Cooke briefly expressed his thanks.

Carnation Leaves Rooting.—Mr. DOUGLAS observed, with regard to a remark of Mr. Massee's, that roots are sometimes produced on the leaves when the roots were affected. That in the case of those he had exhibited, the roots were perfectly sound, and he could suggest no cause for the appearance of the roots on the leaves.

Nephrolepis tuberosa.—Mr. SAUNDERS exhibited some of the tubers found on the roots of this plant. They did not appear to have "eyes" or buds upon them, so as to be propagative. It was suggested that their use may be for water storage only.

Celeriac Diseased.—Specimens were sent by Mr. KITSON, The Chantry, Netherbury. Dr. Cooke undertook to examine and report upon them.

Hyacinth Bulbs Diseased.—Mr. SAUNDERS gave the following report upon the bulbs sent to the last meeting:—"The bulb contained a large number of the bulb-mite, Rhizoglyphus echinopus, and these mites were, no doubt, the cause of the injury to the bulb. Besides the mites, there was a quantity of a greenish mould, which I imagine only began to grow on the bulb after it had been killed by the mites. When bulbs are thus infested with these mites, nothing can be done to save them. When only a few mites are at the base of the bulb, where the attack generally commences, they may be killed by immersing the bulbs for five minutes in water at a temperature of 115° or 120°, Fahr. If some sulphide of potassium (6 ozs. to a pint) be added to the water, this remedy would be all the more efficacious; indeed it is said that soaking the bulbs in this solution cold for twenty minutes will kill the mites. It is very essential that any of the soil from pots which has contained bulbs infested by this pest, should not be allowed to get mixed with fresh soil on the potting-bench or elsewhere." Dr. M. C. COOKE added the following observations:—"Such a profuse crop of saprophytic moulds, as Penicillium, that they effectually mask the disease, whatever it may be, and there are numerous Acari present.

Dictamnus Fraxinella.—Mr. BOWLES referred to the germination of the seeds of this plant, as they were sown as soon as ripe, but did not germinate. Mr. WILKS observed that the seeds will not germinate if kept any time out of the ground, so that it was thought they may have been over-watered. Mr. WILKS added that the best procedure is to sow them at once in a pan with a tile over it touching the earth, till required to be planted out.

Physiological Experiments.—Mr. HENSLOW described an experiment he had carried out with two objects in view.

The first was to ascertain if darkness had any effect upon the direction of growth of roots. He grew some Mustard on a perforated tin over a glass of water, the latter having black paper pasted all over it, excepting a narrow strip facing the light, which could fall upon the roots in the water. They, however, grew vertically downwards uninfluenced under these conditions by either light or darkness.

The second object was to see if water arrested the growth of the primary roots, as in a paper on "A Theoretical Origin of Monocotyledons from Aquatic Dicotyledons" (*Journ. Linn. Soc*, vol. xxix, p. 486), he had inferred from the great number of coincidences, both in morphology and anatomy, that such must have been the case. One such agreement was the total arrest of the axial root in all Monocotyledons, and also in aquatic Dicotyledons, as Ranunculus aquatilis, Trapa, Ceratophyllum, Victoria regia, &c. Such proved to be the case with Mustard. The conical extremity of the tap root became brown and died, while strong secondary roots with root-hairs arose from the pericycle just above the dead apex. Experimental verification thus corroborated the above induction.

LINNEAN.

DECEMBER 4.—Wm. Carruthers, Esq., F.R.S., Vice President, in the chair. The Rev. John Gerard, S.J., exhibited specimens of a Polygala from Grassington, in the West Riding of Yorkshire, collected by Mr. Lister Rotheray from the locality discovered by Mr. John Cryer in May last; the plant has been named P. amarella, Crantz, by Prof. R. Chodat of Geneva. He also showed a monstrous form of Geum rivale, Linn., from between Long Preston and Settle, detected by Mr. Rotheray; the terminal flower was apparently normal, but about 1½ in. below the calyx there appeared a whorl of about twenty petaloid members, on extremely long "claws," and surrounded by a series of leaf-like bracts.

Dr. George Henderson called attention to a passage in the "Georgics of Virgil" (I., 73 *seq*), his notice having been directed to it by Surg.-Gen. Sir Annesley de Renzy, K.C.B., in which the poet, after recommending a system of fallowing, proposes as an alternative means of restoring the fertility of the soil, that before taking a second grain crop, the soil should be refertilised by planting it with a Leguminous crop. The Romans believed that these plants actually enriched the soil, especially if the roots were plentiful. It is remarkable that recent discoveries regarding the nitrification of the soil by the roots of Leguminosæ should have been foreshadowed so long ago by a people who could have known nothing of chemistry or vegetable physiology.

Mr. E. A. Newell Arber gave a digest, illustrated by lantern-slides, of his paper on "The Morphology of the Flowers and Fruits of the Xylosteum section of Lonicera," as follows:—Among many members of the Xylosteum division of the genus Lonicera, union between the two flowers of the cyme, and between the two fruits, is a normal occurrence. A study of the morphology shows that the means whereby the synanthy is effected, are not always of the same morphological nature. True synanthy occurs in L. xylosteum, Linn., and L. nigra, Linn., by the partial coalescence of the walls of the two ovaries in the median plane. Where the synanthy is complete, e.g., L. alpigena, Linn, the fruit is a false berry, in which one pericarp is formed from the walls of the two ovaries. In several species of Lonicera, a bracteolar sheath is present, partially or completely surrounding the gynæcia, which are usually free from one another. The two ovaries may, however, unite with the bracteolar sheath in certain planes, e.g., in L. cœrulea, Linn., and L. pyrenaica, Linn., giving rise to a false synanthy. The resulting fruit is also a false berry. In L. iberica, Bieb., and L. involucrata, Banks, there is no union, direct or indirect, between the two flowers of the cyme.

Mr. C. B. Clarke submitted a paper, "Note on Carex Tolmiei, Boott," of which an abstract was read by Dr. D. H. Scott, Sec.L.S.

REDHILL, REIGATE, & DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

DECEMBER 9.—This Society was favoured with a paper on "Chrysanthemums" on the above date by Mr. W. WELLS, Earlswood Nurseries. Mr. W. Leaman presided. The valuable hints given by Mr. Wells as to the preparation of the soil and the cultivation of the Chrysanthemum were greatly appreciated by his hearers. Naturally, in the discussion which followed, the question of rust was the chief topic.

The following solution was recommended as used to advantage at Earlswood Nurseries, viz., take 1 lb. each lime, soft-soap, and sulphur, boiled in 2 or 3 gallons of water for at least half an hour; then add half a pint of paraffin, and let the mixture gently simmer for a minute or two. Care must be taken not to allow it to boil over. Used as a preventative, this is sufficient to make 30 gallons, but in bad cases the quantity may be reduced to 20, or even 10 gallons. In the latter case, the only safe way to apply it is by sponging the affected leaves.

IRISH FORESTRY SOCIETY.

DECEMBER 10.—The annual dinner of the Irish Forestry Society took place on the above date, at 8 P.M. in the Dolphin Hotel at Dublin. The occasion was utilised for the purpose of discussing the advisability of petitioning Parliament in connection with the reafforestation of Ireland. The Society was inaugurated by Dr. Robert Cooper, of London, only about a year ago, and has so far been very successful. It now consists of over 100 members, and the number is rapidly increasing. Excursions are made during the summer to well managed estates on which timber is grown, and leaflets are issued, and practical advice on forestry is given freely to local bodies and private holders of land in Ireland. Mr. E. M. Archdale, M.P., presided.

Mr. John H. Pigot proposed the following resolution:—"That, in the opinion of this Society, it is imperatively necessary that Parliament should, without delay, provide means for encouraging and superintending the control of timber planting, and for the conservation of existing timber in Ireland, by—(*a*) Providing moneys, or authorising loans to local bodies and individuals, repayable as in drainage or other Government loans; (*b*) Giving statutory powers to local bodies in Ireland to acquire land, strike rates, and otherwise engage in the planting and conservation of timber, and in the necessary operations incidental thereto; (*c*) Extending (if necessary) the powers of the Department of Agriculture and Technical Instruction in Ireland, so as to embrace the supervision of such works in relation to forestry as shall be commenced and financed by means of public moneys, and by otherwise encouraging, controlling, and giving instruction in the science of forestry, and in relation to the planting and conservation of timber; (*d*) The creation and maintenance of State forests and woodlands in Ireland, and by otherwise facilitating the planting and preservation of timber and other trees in Ireland."

Mr. Pigot said there was staring them in the face the danger of a wood famine in Ireland. If tree-planting were developed in this country, an enormous benefit would accrue to a large proportion of the population—people who were now only earning a bare subsistence. In Ireland there were two-and a-half million acres of land lying waste which were in every way suitable for forestry operations. Practically a large part of the business of the United Kingdom was done by imported timber, though if properly looked after the waste lands in Ireland would do away with 95 per cent. of the present amount of imported timber. If that were true, surely they should exert themselves to bring about a change in the existing state of things. He believed that they could carry out the necessary reform through local and other bodies, but County Councils had not yet got land for the purposes of forestry.

Mr. John Galvin, Mount Talbot, Roscommon, in seconding the resolution, said if they desired to see any trees left in the country it would be necessary to approach the Chief Secretary in connection with the coming Land Bill, and to ask him to introduce a clause which would enable Parliament to deal with the question.

Mr. Burbidge, in supporting the resolution, said that almost all forestry operations could be carried out in winter, and would be most beneficial to farm labourers. They should adopt some means of showing the labouring classes of Ireland that it was to their interest to encourage forestry, for it would give them work at a period of the year when they largely needed employment. The resolution was adopted.

Mr. C. G. Grey, of Ballycourcy, Enniscorthy, proposed the following resolution:—"That the Chief Secretary to the Lord Lieutenant be asked to receive a deputation from this Society in order that the views of this Society, embodied in the foregoing resolution, may be conveyed to His Majesty's Government."

Mr. J. Scott Kerr, in seconding the resolution, urged that the Government should support the Society in this movement for the reafforesting of Ireland. He also strongly advocated the publication of a simple text-book on trees and forestry for use in schools.

Mr. J. Lambert Jones supported the motion. He said there had been a want of scientific treatment in the growing of trees. The result had been a sort of rugged growth of timber, practically useless for manufacturing purposes. It was from incredible supineness that something had not been done long ago to effect an improvement in that direction. The Society since its inception had done its best in the cause of forestry, and he hoped its efforts would be attended with the best results. The resolution was passed. *Irish Times, December* 11, 1902.

COMMONS AND FOOTPATHS PRESERVATION SOCIETY.

DECEMBER 11.—A meeting of the Executive Committee of the Commons and Footpaths Preservation Society was held on the above date, at 25, Victoria Street, Westminster, under the Presidency of the Rt. Hon. G. Shaw Lefevre. Amongst others present were Mr. Edward Bond, M.P., Sir Robert Hunter, Mr. Edward North Buxton, Mr. Yarborough Anderson, Mr. Walter Durham, Mr. Percival Birkett (Solicitor), and Mr. Lawrence W. Chubb (Secretary).

The Secretary's report upon Private Bills to be introduced into Parliament during the ensuing session, was considered. It appeared that altogether notice has been given of intention to introduce seventy-two Bills under which Common Land or Open Spaces would be absorbed or rights of way extinguished. Among the metropolitan open spaces which will be interferred with by railway bills are Back Common and Acton Green, Chiswick; Shepherd's Bush Green, Hammersmith; Peckham Rye Common and Tooting Bec Common. Over eleven acres of Tooting Bec Common are within the limits of deviation of the proposed London & Brighton Electric Express Railway. Several proposed tube Railways will affect Hyde Park, St. James's Park, and Green Park, and the Metropolitan District Railway seeks to acquire further land on the Victoria Embankment. It was further stated that 333 acres of Common Land in Yorkshire, Monmouth, Sussex, and Glamorgan, would be acquired for purposes of water undertakings, and that the various Metropolitan Improvement Bills would involve the enclosure of portions of Wood Green Common, Eltham Common, and the old Brydewell burial-ground. It was resolved to communicate with 412 local authorities within whose area rights of way would be interferred with by railway companies, and the solicitor was directed to report upon various bills which affect Common Land.

Among other matters considered at the meeting were the proposed extension of Hampstead Heath and the Hainault and Lambourne open space scheme. It was stated that the Society had, since the last meeting of the Committee, secured the re-opening of twelve obstructed rights of way and the restitution of a considerable area of Common Land.

NATIONAL AURICULA & PRIMULA.

DECEMBER 13.—The annual general meeting of the members of the above Society was held at the Horticultural Club, Hotel Windsor, on the above date, there being a good attendance of members. Mr. E. Colby-Sharpin, chairman of the committee, presided. The annual report presented by the Secretary showed that the exhibition in April last was one of the largest ever held by the Society, in proof of which it may be stated that the sum of £11 6*s.* more was paid in prize-money than in 1901, so good was the competition all round. Eight persons had ceased to be members, one of them being a subscriber of £5 to the Society, which, under present circumstances, is a severe loss. As the balance in hand is small, a reduction in the amount of some of the prizes was recommended. The financial statement showed an income of £92 6*s.*, including £21 13*s.* 6*d.* brought over from last year; the expenditure was stated to have been £85 19*s.* 4*d.*, including £31 12*s.* 6*d.* awarded as prizes; a balance of £6 6*s.* 8*d.* being carried forward till next year. The report and money statement were adopted. Some reductions in the amounts offered as prizes in some of the classes were made to the amount of about £3. In the course of revising the Schedule it was announced that class 10 for six green edges, in not fewer than three varieties, and not more than two of any one variety, would read grey edges. Special prizes were offered by Messrs. Douglas & Smith. Some conversation took place as to the alleged pin eyed character of some of the newer varieties of alpine Auriculas, and it was reported that at the Midland Auricula show held at Birmingham this year, a resolution was passed affirming the necessity for the judges to assert the old principle in Auricula judging, that a protruding style should be a disqualification. Class 31, for a basket of Primroses or Polyanthus, was made to read, a collection of the same, the plants in or out of pots, arranged on a table space of 4 feet by 3 feet.

Sir John T. D. Llewelyn, Bt., was re-elected President; the Vice-presidents were also re-elected, with the addition of the name of Mr. J. W. Bentley, Stakehill, Manchester. Messrs. F. A. Wellesley, J. Sargent, and S. Mortimer, were added to the committee, and Mr. T. E. Henwood elected hon. secretary and treasurer, with many thanks for his valuable services to the Society; a Vote of Thanks was passed to the Chairman for presiding.

NATIONAL CARNATION & PICOTEE (Southern Section).

DECEMBER 13.—This is the time of year when the special floricultural societies hold their annual meetings, and on the above date the devotees of the Carnation met at the Horticultural Club to take a retrospective view of the past year's work. In the absence of the President (Mr. M. R. Smith), who is abroad for the benefit of his health, the chairman of the committee, Mr. E. Colby Sharpin, presided. Among those present were Messrs. F. A. Wellesley, H. Turner, A. W. Jones (Birmingham), C. Blick, E. Charrington, A. J. Rowberry, &c.

In presenting the annual report, the Secretary, Mr. T. E. Henwood, set forth that the position of the Society is of a thoroughly sound and satisfactory character, and although forty-five members had retired from various causes, forty-seven had been elected. In view of a declining balance at the bank, he stated that a reduction of prize-money in the schedule of prizes for 1902 became a necessity, and owing to this the income for the year had exceeded the expenses by some £6; a much larger sum than usual had been paid away owing to a reprint of the report having become necessary through the demand made for copies of Mr. Martin R. Smith's report on Carnation manures, which was printed with the annual report. The balance-sheet showed that including the sum of £119 10*s.* 6*d.* brought over from last year, the total income for the year was £258 11*s.*; subscriptions represented £229 6*s.* 6*d.* of this sum, while the expenditure included £128 11*s.* paid as prizes; printing and stationery came to £58 7*s.* 5*d.*, leaving a balance in hand of £125 15*s.* 10*d.*, a statement which appeared to give great satisfaction to those present. Mr. Martin R. Smith was re-elected President by acclamation; and Mr. Martin Rowan, described by Mr. Henwood as the "Grand Old Man of the Carnation world," who is retiring from the Committee on the plea of impaired health, and Mr. V. Charrington were elected Vice-Presidents, making nine in all. The outgoing members of the Committee were re-elected; the names of Messrs. A. J. Rowberry and J. J. Sheldon were also added in the places of two others who retired. Mr. T. E. Henwood was re-elected Secretary, with warm thanks for his services. The number forming the Floral Committee was increased to seven, Messrs. E. Charrington and W. Spencer, jun., being added.

A communication was received from Mr. B. J. W. Grieve to the effect that, having regard to the financial position of the Society, the pruning-knife should be applied to the schedule of prizes, and the number given in each class reduced to two only. He also made complaint as to the awards made in Division IV. at the last show, prizes having been given to flowers which had been dressed, and staged as undressed blooms; and Mr. Grieve recommended that every encouragement should be given to the undressed blooms; especially in the interests of amateurs, who are not skilled in the art of dressing, and that the use of collars and cards should be discontinued. It was agreed that the attention of the judges should be given to the calyces, that they should closely examine the same; and in this respect, the following addition to the regulation was made:—"There must be no manipulation of the calyx; a split calyx will be a disqualification." It was resolved that in Classes 10, 24, and 34, the words "Carnations, selfs, and fancies," should be made to read, "selfs, fancies, and yellow grounds." It was agreed that application be made to the Royal Horticultural Society for permission to hold two additional small shows of Carnations; the one a fortnight before the annual exhibition, which was fixed for July 21, 1903; and the other a fortnight later.

A new class was framed, to be added to Division IV., to follow Class 39, for three blooms each of six varieties, to be shown in bottles, the wording to be the same as in Class 10; and five prizes were allotted to it, and also the points the blooms would carry. An additional class was introduced, to follow the preceding, for single blooms of selfs of any colour, prizes and points being also adjusted.

The two last prizes in the classes in Division IV. were struck out, in order to supply the prizes offered in the two additional classes.

The method of awarding Certificates of Merit came in for some sharp criticism, and on the motion of Mr. F. A. Wellesley, seconded by Mr. A. W. Jones, it was resolved that:—"The granting of Certificates of Merit shall be vested in the Floral Committee. It shall be an instruction to that body, that when awarding Certificates of Merit, the variety shall also be classified. The judging of new varieties to take place after the luncheon to the judges." It was understood that application would be made for the use of a table, at which the Floral Committee would sit, and all new varieties be brought to the table; none but members of the Floral Committee to be permitted to be near the table while the new flowers are being considered. It would obviously be a great convenience all round, and especially to the representatives of the gardening Press, if the awards to new varieties were made before, and not following the luncheon.

The proceedings, which were lengthy, were brought to a close by a hearty vote of thanks being passed to the Chairman.

NATIONAL CHRYSANTHEMUM.

DECEMBER 15.—The Executive Committee met at the Royal Aquarium on the above date, Mr. Thomas Bevan presiding. Among the correspondence was a letter from an amateur residing at Blackheath, asking if classes could be introduced into the schedule of prizes for exhibitors residing in the thickly populated parts of the metropolis, the writer complaining that he had to compete with exhibitors in all parts of the country and residing in much more favourable districts. The matter was referred to the Schedule Revision Sub-Committee.

The subject of a vote of the Committee given at the last meeting upsetting a decision of the Arbitration Committee in a case of protest was considered, and notice given of a resolution to rescind the resolution of the Committee for the next meeting.

The prizes awarded at the December show were announced, amounting to £59 7*s.* 6*d.*; also the Medals awarded to miscellaneous exhibits. An interim financial statement of a satisfactory character was made. It was announced that the cheques for the December prize-money had been signed that evening.

The President (Sir A. Rollitt), acting upon a request made to him on the occasion of the Annual General Meeting in February, which arose out of a point of order in relation to the voting powers of delegates from affiliated societies not being members of the Society, submitted certain amendments to the rules affecting affiliated societies, and these were considered by the Committee. After considerable discussion, a

resolution was adopted thanking the President for his assistance in revising the rules, and expressive of some concern lest their adoption in the form in which he had submitted them might affect injuriously the support received from affiliated societies, and requesting Sir Albert to inform the Committee whether he desires his amendments to be submitted to the Annual General Meeting as his personal propositions.

An audit of the number of blooms exhibited at the November show, prepared by Mr. A. Taylor, was submitted, which comprised those staged for competition in the classes for cut blooms alone, and the aggregate was 2,544, the sections being represented as follows:—Japanese, 1,797; incurved, 471; reflexed, 24; large anemones, 108; anemone pompons (bunches), 12; pompons (bunches), 114; and singles (bunches), 18—a bunch being counted as a single bloom.

The Chairman stated, in answer to a question as to a future place of meeting for the Society and its shows, that the committee appointed to make enquiries were negotiating, and he hoped in a very few days to be able to make a satisfactory announcement. Three Ordinary Members and one Fellow were elected.

CHESTER PAXTON.

UNDER the Presidency of Mr. John Weaver, Christleton, the fourteenth Annual Meeting of this Society was held in the Grosvenor Museum, Chester, on Saturday, the 13th inst. The balance-sheet, together with the Annual Report for the past year, was submitted by Mr. G. P. Miln, the Hon. Sec., and from this we gather that the Society is now in a stronger position than ever, the number of members and subscribers being close upon five hundred, and with a balance in hand of over £50. Votes of thanks were accorded to the Officers and Committee for their past services, the Hon. Sec. being specially complimented upon such a satisfactory statement of accounts. Captain McGillycuddy, Bache Hall, who takes a keen interest in the Society, was unanimously elected President for the year, with Mr. N. F. Barnes, Eaton, as Chairman of Committee, and the following Executive: Messrs. A. Armstrong, J. Clack, Jno. Dutton, A. Ellams, A. E. Goodman, T. Gilbert, J. Jackson, H. G. Little, G. Lyon, S. May, W. Pringle, Jos. Ryder, E. Stubbs, J. D. Siddall, Robt. Wakefield, and Jno. Weaver, with R. Newstead as Consulting Naturalist, and G. P. Miln, Hon. Sec. It was decided to hold the next exhibition of Fruits and Chrysanthemums in the Town Hall on Wednesday and Thursday, November 11 and 12, 1903.

NATIONAL DAHLIA.

ANNUAL MEETING.

DECEMBER 16.—This was held at the Windsor Hotel, Mr. Edward Mawley presiding. Besides sixteen members of the Committee, there were only three other persons present. The Committee's report, read by the hon. secretary, Mr. J. F. Hudson, was of a congratulatory nature, and whilst admitting that the past summer was very unfavourable to Dahlias, even keeping some growers from competing at the Society's exhibition, yet it did enable some very fine flowers to be shown there. It was remarked that last September's show was the first the Society had held in the metropolis. During the year the Society had granted twenty-nine Certificates only, out of 119 seedlings shown for awards, as against 41 given last year. That fact showed that a higher standard of merit in relation to the Cactus section was now set up. Thanks were given to the various donors of special prizes, and also to the Horticultural Club.

The financial statement, as audited by Mr. Harry Turner, showed that the total income was £132 14s. 8d., and the expenditure £127 16s., leaving a balance with all charges fully paid of £4 18s. 8d. The report showed that further arrangements had been made with the Royal Horticultural Society's Council to hold next year's show in the Drill Hall on September 1 and 2. The President, in proposing the adoption of the report, thought the successful result of the year's working was largely due to the effective supervision of the treasurer, Mr. C. E. Wilkins; and if the balance was small, it was on the right side. The Royal Horticultural Society's Council had been most liberal and kind towards the Society, and the freedom enjoyed at the Drill Hall was marked and pleasant. He hoped that special efforts would be made to increase the attendance and advertise the show. Mr. H. Turner seconded the adoption of the report, which, after brief discussion, was carried.

The election of officers and committee followed. The name of Miss Willmott was added to the list of patronesses, and that of the Earl of Ilchester to that of the patrons. Mr. Mawley was re-elected President, and the name of Mr. J. F. Hudson was added to the list of Vice-Presidents. With one exception, the whole of the thirty members of the Committee were re-elected; and Mr. E. T. Cook, hon. sec. of the Horticultural Club, took the vacant place. Mr. J. F. Hudson, having tendered his resignation as hon. sec. on the ground of pressing duties elsewhere, Mr. P. W. Tulloch, of Hove, Brighton, and the City, was unanimously elected in his place. Mr. C. E. Wilkins was re-elected treasurer. Both the latter and Mr. Hudson were cordially thanked, as also was Mr. E. Mawley. Mr. H. Turner was re-elected auditor.

Some slight alterations in the bye-laws were made, and discussion arose over a request to hold a show in Manchester; and also as to taking part in a trial of Cactus Dahlias at Chiswick next year.

NATIONAL ROSE.

REPORT OF CATALOGUE COMMITTEE.

VARIETIES OMITTED FROM THE NEW EDITION.

Exhibition Roses.—H. P.'s: A. Rigotard, C. Darwin, Clio, Comtesse d'Oxford, Countess of Rosebery, Duc d'Orleans, Duke of Fife, Eclair, H. Schultheis, Jean Soupert, Jeannie Dickson, J. S. Mill, Lady Sheffield, Mme. Delville, Marchioness of Dufferin, Margaret Dickson, Marie Finger, Maria Rady, Marquise de Castellane, Prince C. de Rohan, Reynolds Hole, Sir R. Hill, Star of Waltham, Sultan of Zanzibar, T. Mills.

H. T.'s — Captain Christy, Charlotte Guillemot, Duchess of Albany, Viscountess Folkestone.

T.'s.—Comtesse de Panisse, Devoniensis, Ethel Brownlow, Francisca Krüger, Perle des Jardins, Souvenir de T. Levet, Sylph.

Bourbon.—Mrs. Paul.

Garden Roses.—H. P.'s: Annie Laxton, Charles Lamb, Cheshunt Scarlet, Glory of Cheshunt, Mme. C. Joigneaux, Magna Charta, Maréchal Vaillant, M. Boncenne, Mrs. F. W. Sanford, Princess Louise Victoria, Violette Bouyer, Wm. Warden.

Chinas.—Duke of York.

H. T.'s—Souvenir de Wootton.

T.'s and N.'s.—Comtesse Riza du Parc, Corinna.

Sweet Briars.—Jeannie Deans.

VARIETIES NOT IN THE LAST EDITION TO BE INSERTED IN THE NEW ONE.

Exhibition Roses.—H.P.'s: Ben Cant, Frau Karl, Druschki.

H.T's.—Alice Lindsell, Duchess of Portland, Edith D'Ombrain, Florence Pemberton, Gladys Harkness, Lady Moyra Beauclerc, Mme. Wagram, Comtesse de Turenne, Mamie, Mildred Grant, Papa Lambert.

T's.—E. Veyrat, Hermanos, Lady Roberts, Souvenir de Pierre Notting.

Garden Roses: Summer-flowering.—Damask: Crimson Damask, Lady Curzon, Lady S. Wilson, Lady White.

Alba.—Double white.

Sweet Briars.—Anne of Geierstein, Julia Mannering, Lucy Bertram, Rose Bradwardine.

Climbing polyantha. — Aglaia, Electra, Euphrosyne, Leuchtstern, Queen Alexandra, Thalia, The Dawson Rose, The Lion.

Single-flowered.—Rosa Sinica.

Autumn-flowering H.P's — Ards Rover, Jeannie Dickson, H. Schultheis, Marie Finger, Mrs. Rumsey.

H.T's.—Admiral Dewey, Captain Christy, Grand duc de Luxembourg, La France de '89, Lady Battersea, L'Innocence, Liberty, Madame Ravary, Viscountess Folkestone.

T's.—Beryl, Billiard et Barré, Boadicea, Corallina, Dr. Rouges, François Crousse, François Dubreuil, Francisca Krüger, Georges Schwartz, Lucy Carnegie, Mme. Berkeley, Meta, Mrs. B. R. Cant, Souvenir de W. Robinson.

Bourbon.—Mrs. Paul.

Polyantha.—Eugénie Lamesch, Leonie Lamesch.

Hybrid Austrian Briar.—Soleil d'Or.

Rugosa.—Atropurpurea, Weeping.

Single—Belle Fleur, Irish Beauty, Irish Glory, Irish Modesty, Una.

Wichuriana. — Albérie Barbier, Auguste Barbier Dorothy Perkins, Gardenia, Jersey Beauty, René André, Rubra.

READING AND DISTRICT GARDENERS' MUTUAL IMPROVEMENT.

AT the last fortnightly meeting of the above Association, Mr. W. TRIBBICK, gr., Brooke, Isle of Wight, read an interesting and practical paper on "The Cultivation of Peaches and Nectarines." A good discussion followed, in which Messrs. Hinton, Neve, Woolford, Blake, Powell, Clinch, Stanton, Alexander, Fry, and Bright, took part. The exhibits were not numerous, but one was of exceptional interest, viz., a punnet of Red Currants, shown by Mr. F. BRIGHT, gr., Whiteknights, picked on the same day from the open. The fruits were in very good condition, of good size, and equal to those usually gathered in July.

THE WEATHER.

METEOROLOGICAL OBSERVATIONS taken in the Royal Horticultural Society's Gardens at Chiswick, London, for the period Dec. 7 to Dec. 13, 1902. Height above sea-level 24 feet.

1902. December 7 to December 13.	Direction of Wind.	Temperature of the Air. At 9 A.M. Dry Bulb.	Wet Bulb.	Day. Highest.	Night. Lowest.	Rainfall.	Temperature of the Soil at 9 A.M. At 1-foot deep.	At 2-feet deep.	At 4-feet deep.	Lowest Temperature on Grass.
		deg.	deg.	deg.	deg.	ins.	deg.	deg.	deg.	deg.
Sun. 7	E.N.E.	27 6	27 2	35 5	25 6	...	37 1	43 0	47 9	18 3
Mon. 8	E.N.E.	35 0	32 2	35 7	27 0	0.01	36 8	42 5	47 6	24 1
Tues. 9	E.N.E.	35 5	33 2	37 1	33 0	...	33 7	42 0	47 2	30 5
Wed. 10	E.N.E.	36 9	35 0	38 4	35 2	...	36 8	41 7	46 9	31 4
Thu. 11	N.E.	34 0	32 5	35 0	34 0	...	37 6	41 6	46 5	32 7
Fri. 12	S.E.	32 3	31 3	46 6	32 0	0.07	37 6	41 6	46 3	26 6
Sat. 13	S.E.	46 6	45 9	52 6	32 0	0.02	38 7	41 5	46 1	25 4
Means	...	35 4	33 9	40 1	31 3	Tot 0.10	37 3	43 0	46 9	27 0

Remarks.—The weather has been dull, with very cold east and north-east winds, and a rise in the temperature towards the end of the week.

GENERAL OBSERVATIONS.

THE FOLLOWING SUMMARY RECORD of the weather throughout the British Islands, for the week ending Dec. 13, is furnished from the Meteorological Office:—

"The *weather* continued dry in most districts until past the middle of the week, although slight sleet or snow was experienced at times in the east and south-east. On Thursday, rain commenced to fall at some of the extreme western and south-western stations, and by the following day had spread to all parts of the Kingdom. Thunder and lightning, accompanied by sleet, occurred on Saturday in the Hebrides.

"The *temperature* was much below the mean until Friday, when it rose rapidly. In England, S., and the Channel Islands, the average for the week was as much as 6° below the mean value, and in most other districts 4° or 5° below. Over Ireland and England, N.E., however, the deficit was only 2°. The highest of the maxima were recorded on the 13th, when they varied from 49° in Scotland, N., to 55° in Scotland, W., Ireland, S., and the Channel Islands, and to 57° in England, S.W. The lowest of the minima, registered, as a rule, on the 7th were as low as 14° in Scotland, E., and the Midland Counties, 16° in England, E., and 17° in England S. and N.W., while elsewhere they varied between 18° in Scotland, N., and 27° in the Channel Islands.

"The *rainfall* was less than the mean in all districts. Over England and the east of Scotland the fall was extremely slight.

"The *bright sunshine* was deficient generally, but exceeded the normal amount in Scotland, N., England, N.W., and Ireland, N. The percentage of the possible duration ranged from 25 in Scotland, N., and 24 in Ireland, N., to less than 10 in most parts of England and to only 2 in England, N.E."

THE WEATHER IN WEST HERTS.

THE recent cold period, which had lasted ten days, broke up on the 13th. The change to warmer weather set in very suddenly. For instance, on the 12th the temperature in the screen never rose more than 2° above the freezing-point, whereas on the two following days 43° and 53° were respectively registered by the same thermometer. One noteworthy feature of the cold period was that the days were as a rule much more exceptionally cold than the nights. The underground temperatures have risen rapidly, in fact, at 1 foot deep the reading is now 6° higher than it was only four days ago. Rain fell on four days during the week, but the total quantity amounted to only about ½ an inch, which is equivalent to a watering of two and a quarter gallons on each square yard of surface in my garden. This fall has, however, proved sufficient to re-start both percolation gauges. Already about 2 gallons have come through the bare soil gauge, but only ¼ of a gallon through that on which short grass is growing. The winds during the week have been very variable in strength and direction. On two days the atmosphere was quite calm, whereas on the night of the 14th the mean velocity at one time reached 20 miles an hour.

direction south. The, although by no means a remarkably high velocity, is nevertheless, with one exception (Dec. 8), higher than any recorded here since March last, showing how free from high winds the last nine months have been. On three consecutive days the air continued very damp, but during the rest of the week the amount of humidity in the atmosphere was below the average. *E. M., Berkhamsted, December* 16, 1902.

ANSWERS TO CORRESPONDENTS.

*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

BIG BUNCHES OF GRAPES: *A. T. R.* There is no method of Vine-culture by which these extraordinary bunches can be produced at the will of the cultivator. They are accidental in their occurrence, and are more frequently met with on Vines grown on the long rod than on the short spur method; and on lightly cropped young and vigorous Vines.

BOOKS: Nicholson's *Dictionary of Gardening*, new edition; Thompson's *Gardeners' Assistant*, new edition.

CATTLEYA LEAVES DROPPING: *J. M. G.* The damage may arise if the flower-spikes are cut before fully matured, and the plants kept in a too cold house. The base of the flower-spike might then carry the injury into the bulb. But there is a disease in Orchids which produces similar results.

CHRYSANTHEMUMS: *Novice.* Varieties succeed each other so quickly, that it is impossible to afford all the exact details you require in respect to individual ones, many of which have not yet been cultivated in the manner described. You may, however, conclude that all those that the catalogues and guides recommend to be grown from 1st crown buds, "taken" at an early date, require more than the usual time to develop their flowers. Except from the question of size, there are probably no varieties but afford prettier flowers from 2nd crown than 1st crown buds. You may grow any of the varieties from terminal buds. In regard to a selection of the best varieties, those already mentioned in previous pages illustrate the type that succeeds best, but there is no reason why you should not attempt the cultivation of any new or old variety in a 7-inch pot.

CINERARIA STELLATA: *H. C.* The height of your plants is about the average under ordinary methods of cultivation in pots.

CLUB IN CAULIFLOWERS, CABBAGES, &c.: *W. T. F.* Read our reply to "Zig-Zag," in our issue for November 8 of the present year. The Bordeaux Mixture is of no use against this fungus. If the Periwinkle and Mint are suffering from some species of leaf fungus, the Bordeaux Mixture would do good, but it would be of no use against a root fungus.

HEATING A SMALL SPAN-ROOFED ORCHID HOUSE: *Amateur Orchid Grower.* As no stokehole can be constructed, you should choose a self-contained upright double cylinder boiler of cast iron or copper, with which any good boiler-making firm would supply you. The quantity of 4-inch cast iron pipe should consist of not more than two flow and one return pipe, running along two opposite sides of the house; and as you cannot sink these below the point at which the return pipe enters the boiler, there must be a right and a left-hand branch, and thus you will avoid the inconvenience of having to step over the pipes at the doorway always. We cannot recommend dealers.

HEDYCHIUMS: *W. D.* Winter the Hedychiums in a cool house where frost is kept out, and in their pots, keeping them thoroughly dry until the time for growing comes round again, then repot and water carefully at first and give more heat.

KEW: *Constant Reader.* The books belonging to the students' library are available for the young gardeners. As regards your other questions, you should address Mr. W. Watson, the Curator.

NAMES OF FRUITS, ETC.: *We are desirous to oblige our correspondents as far as we can, but the task is becoming too great, too costly, and too time-consuming for us to continue it without restrictions. Correspondents should observe the rule that* **not more than six varieties** *be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. The fruits should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.*—*C. H. F.* 1, Beurré d'Anjou; 2, Triomphe de Jodoigne; 3, Josephine de Malines; 4, Doyenné d'Alençon; 5, Nanny; 6, Royal Snow.—*F. C.* 1, Cox's Orange; 2, Melon Apple; 3, Small Admirable; 4, Wellington; 5, Scarlet Nonpareil; 6, Broad-Eye Pippin.—*H. Reynolds.* 1, Lady's Finger; 2, Sam Young; 3, Wadhurst Pippin; 4, Hoary Morning; 5, Wellington; 6, Holland Pippin.—*G. Paul.* Pears decayed; send earlier next season.—*T. K.* Rushock Pearmain.—*W. T. P.* 1, Northern Greening; 2, Bramley's Seedling; 3, Adams' Pearmain; 4, Wellington; 5, Cornish Gilliflower; 6, Hollandbury.—*C. B. C.* 1, Scarlet Leadington; 2, Hunt's Deux Ans; 3, Calville Malingre; 4, Rhode Island Greening; 5, Beurré d'Aremberg; 6, Passe Colmar.—*J. B.* You give no particulars about the two Apples sent; are they both from the same tree, and are you sure there are not two sorts grafted on it? A considerable range in size and form is often found in Yellow Ingestre on old trees.—*H. W.* 1, Duc de Morny; 2, Beurré d'Aremberg; 3, Winter Franc Real. Those named were not in good condition, and the others sent were quite rotten, and useless for identification.—*G. J.* 1, Beurré Bachelier; 2, Dr. Trousseau; 3, Triomphe de Jodoigne; 4, Napoleon; 5, Fondante de Malines.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*G. Wingfield & Son.* The tuber sent is that of an edible plant, native of South America, Tropæolum tuberosum—*J. C.* So far as we can judge of such variable plants, the Codiæums or Crotons are: 1, C. Queen Victoria; 2, C. irregulare; 3, C. trilobum; 4, C. Johannis; 5, C. elegantissimum; 6, C. Mortii; 7, C. variegatum; 8, C. interruptum; 9, not recognised: 10, C. Weissmanni; 11, C. Evansianum; 12, Pellionia pulchra; 13, Nephrolepis exaltata.—*J. K.* Thuya (Thuiopsis) dolabrata.—*W. D.* 1, Lastrea atrovirens; 2, Stenotaphrum americanum; 3, probably Oreopanax Sanderiana; 4, Acacia dealbata; 5, Jasminum revolutum; 6, Cattleya Bowringiana.—*R. L.* The fertile form of Lygodium japonicum.—*R. B.* One of the forms of Hedera Helix.—*Mrs. A.* Cotoneaster Simonsii.—*J. C. Nutt.* We cannot name such specimens.

PARSLEY: *E. M. C., Kingstown.* The Parsley is suffering from root-canker, caused by poor nutrition. A sprinkling of equal parts of soot and quicklime on the soil will restore vigour. *G. M.*

SLOW COMBUSTION BOILER, AND TAR AND WATER CLOSING THE FLUE: *F. H.* Can you not use coke as fuel instead of coal? If you cannot, the flue must be cleaned frequently with a steel brush. In certain types of tubular boiler, the formation of tar in tubes is a source of constant trouble.

TEMPORARY GREENHOUSE: *C. J. E.* We would advise you to consult a solicitor.

WET AND MOSSY CROQUET LAWN: *Constant Reader.* If it be wet and mossy, notwithstanding it is well drained, you should ascertain if there are springs in the soil not tapped by the drains, or if the pipes or tiles, or the outlet drain, are choked with the roots of trees and big shrubs—a common occurrence. If this is found to be case, rubble drains must be laid at 3 to 4 feet deep in place of the pipes. Sink holes at that depth, these will show the water-level. It will sometimes happen that the drains are not laid sufficiently deep, or their direction is across instead of straight, or slightly diagonally down the slope, as is the proper direction. No surface application of cinders, &c., will relieve the soil of the water it contains. The size of a croquet-lawn may be 30 yards long by 20 yards broad, and a full-sized one 40 yards by 30 yards.

WHITE SCALE INSECTS ON TACSONIA VAN VOLXEMI: *White Scale.* It will be quite safe to apply the kerosene emulsion of the florists, or a home-made preparation as under, with a stiff brush or piece of sponge, or a sprayer: Soft-soap ¼ lb., paraffin 1 gallon, soft water ½ gal. Boil the soap, and when quite dissolved and whilst still hot, churn with a syringe till creamy. When used, dilute with nine times the quantity of soft water at a temperature of 140°, and churn again.

COMMUNICATIONS RECEIVED.—K. S., Berlin.—R. D.—J. W. I.—W. T.—Prof. Reynolds Green.—G. W. B.—S. W. F.—W. T.—Inquirer.—H. W.—J. A. S.—Edith P.—H. N.—J. E. S.—G. M.—W. P. B.—W. L.—F. S.—J. G. B.—Lilian.—H. C. W.—S. C.—N. M.—C. B.—T. G. H.—J. B. C.—W. S.—E. J. J.—T. T.—J. G. P.—E. B.—T. H. B.—Rev. C. Wolley-Dod.—W. C.—F. C.—J. R. J.—T. H. C.—W. J. G.—Country Gardener.

GARDENING APPOINTMENTS.

MR. GRACY S. FOLLWELL, late of Alnwick Castle Gdns., as Head Gardener to Sir DAVID CARRICK-BUCHANAN, K.C.B., of Drumpellier, Coatbridge, Lanarkshire. He entered on his duties Nov. 21.

Mr. M. NICHOLLS, formerly of Kew, and Tolgus Hill Nurseries, Redruth, Cornwall, as Head Gardener to W. M. ACWORTH, Esq., Alice Holt Estate, near Farnham. He entered upon his duties on Dec. 17.

Mr. W. WHEELER, for the past thirteen years Foreman at Grove Gardens, Teddington, as Head Gardener to C. E. HOWARD, Esq., at the same place.

Mr. WILLIAM KEAY, for the past seven years Gardener at Westerlee, St. Andrew's, Fifeshire, as Head Gardener to WALTER CUNLIFFE, Esq., Headley Court, Epsom, Surrey.

Mr. F. H. SHINNER, lately Foreman at Osberton House, Worksop, Notts, as Head Gardener to Lord ARTHUR BUTLER, Gennings Park, Maidstone, Kent.

Mr. J. C. BROTHERSTON, for the last twelve months Nursery Manager to KENT & BRYDON, of Darlington, and three years previously Head Gardener at Selaby Park, Gainford, as Head Gardener to Sir THOMAS WRIGHTSON, M.P., Neasham Hall, Darlington.

Mr. PARRY, as Gardener to Col. J. H. WALWYN, Croft-y-Bwla, Monmouth.

Mr. S. W. TUCKER, for the last four years Foreman at The Dell Gardens, Egham, Surrey, under Mr. BALLANTYNE, and formerly Foreman at Cardiff Castle, as Head Gardener to the Right Hon. the Earl of RADNOR, Longford Castle, Salisbury. He enters on his duties on Feb. 1.

Mr. W. PROSSER, for a period of nearly seven years Head Gardener at Moreton House, Dorset, as Head Gardener to the same Lady at Branksome Dene, Bournemouth.

Mr. CHARLES SOLMAN, late Head Gardener and Forester at Pyt House, Tisbury, Wilts, as Head Gardener and Estate Manager to the Rev. ARTHUR TOOTH, St. Michael's Orphanage, Woodside, Croydon, entering upon his duties on Saturday, December 20.

Mr. JOSEPH TAYLOR, for the past year Head Gardener at Inwoods, Monkton Farleigh, Bradford-on-Avon, and previously, for a period of ten years, Foreman in the Gardens, Claverton Manor, Bath, as Head Gardener to A. M. LEE, Esq., Winsley House, Winsley, Bradford-on-Avon, Wilts.

CATALOGUES RECEIVED.

SEEDS.

JAS. VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea.

SUTTON & SONS, Royal Seed Establishment, Reading.

TREES AND SHRUBS, ETC.

JOHN PEED & SONS, Streatham Nurseries, Mitcham Lane, Streatham, S.W.

STANCLIFFE ESTATES CO., LTD., Darley Dale, near Matlock, Derbyshire.

MISCELLANEOUS.

JAS. VEITCH & SONS, Royal Exotic Nurseries, King's Road, Chelsea—Fruit Trees and Chrysanthemums.

W. CUTBUSH & SON, Highgate Nurseries, London, N.—New Chrysanthemums.

FOREIGN.

ERNST BENARY, Erfurt, Germany—Trade List of Seeds.

LEONARD LILLE, 9, Quai des Cé.estius, Lyons, France—Seeds.

(*For Markets, see p. viii*)

THE
Gardeners' Chronicle

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FLORA OF THE GALAPAGOS ISLANDS.

IN 1847, Dr. (Sir Joseph) Hooker published the first connected account of the botany of these islands, based on the collections made by Darwin and others. A few years later, a Swedish expedition visited the archipelago, and N. J. Andersson, the botanist, worked out the botanical collection, and published the results, together with what was previously known, in 1854. Since then, numerous small contributions to the flora have appeared in various periodicals, most of which have been summarised by the writer in the *Gardeners' Chronicle*, where an account of the Cactaceæ of the islands* has also appeared.

Beginning in 1891, several American expeditions have been made to the Galapagos, notable among them that of the late Dr. G. Baur—notable because he made excellent and considerable zoological and botanical collections, but more because he advanced a theory of the origin of the islands, which has since been much discussed and disputed, and to which I shall refer again. The latest was the Hopkins-Stanford expedition; and the botanical collectors, Messrs. R. E. Snodgrass and E. Heller, made very extensive collections, not only securing much additional material from the five larger islands, visited by Darwin and Andersson, but they were also able to visit no fewer than twelve of the smaller islands, "nearly all of which yielded new and peculiar species or forms." Dr. B. L. Robinson, the Curator of the Gray Herbarium, has worked out these collections (*Proceedings of the American Academy of Arts and Sciences*, xxxviii. (1902), pp. 77—270, tt. 1—3), having previously had Baur's plants through his hands.

Apart from the Cactaceæ, the flora of the Galapagos contains little of interest from a horticultural standpoint; but the origin of the islands, and the origin of their flora, are questions of the highest interest—unsolved problems perhaps I may add. For convenience, I repeat here that the Galapagos (Turtles) are a group of volcanic islands on the equator, in about 90° west longitude, and 500 miles from the coast of Ecuador in western South America. There are about twenty named islands, besides a number of islets and rocks. The largest, Albemarle, is about 100 miles long, and its mountains rise to a height of 5,000 feet, and the climatal differences are considerable. In the lower zone the climate is dry and hot, and few conspicuous plants, except the Cacti, flourish among the naked blocks of lava; but vegetation increases with altitude, and the higher islands have a relatively luxuriant vegetation in their upper zone, where alone trees abound. Some of the trees descend even to the shore, diminishing in stature downwards, and appearing as dwarf, stunted shrubs on the coast, thus reversing the order obtaining in alpine countries. The trees and shrubs are mostly armed with spines and thorns, for example Mimosa, Acacia, Parkinsonia, Discaria, Castela, Zanthoxylum, Cereus, and Opuntia.

The composition of the flora of the Galapagos is characterised by a considerable specific endemic element, and a very small generic one, taking the remoteness of the group into consideration. As I pointed out some years ago,* Darwin and others, through some unaccountable error, have greatly overestimated the number of peculiar genera, even if all the genera then regarded as peculiar were accepted as such. But as a matter of fact, only two are now retained as distinct, namely Scalesia and Lecocarpus (Compositæ), and they are very closely allied to American genera. The large collections Dr. Robinson has worked out have not yielded a single new genus, and his investigations confirm my statement that there is no very distinct genus confined to the islands. On the other hand, about forty species are added, mostly belonging to genera previously known to be represented by one or more species. Cereus sclerocarpus, C. nesioticus, and Opuntia Helleri, are new Cacti. The first has a trunk 20 feet high, and flowers 4 inches long; and the second is remarkable for its dwarf, tufted habit, as it produces numerous radiating stems about a foot long. It may be mentioned that the author has overlooked the figure of Opuntia myriacantha, which appeared in the *Gardeners' Chronicle*, Mar. 24, 1900. Petaloid monocotyledons are limited to Tillandsia insularis, Commelyna nudiflora, Hypoxis decumbens, and Epidendrum spicatum. The first and the last are endemic, but certainly very rare. Darwin discovered the Epidendrum, and a fruiting specimen of apparently the same species is all that subsequent collectors have found in the way of Orchids, excepting an imperfect specimen of a species of Eulophia in the Kew herbarium. Astragalus (Phaca) Edmonstonei is another remarkable plant that has not been rediscovered. Interesting among recent discoveries are imperfect specimens of a species of Chusquea (Bambuseæ), and the following aquatic plants: Potamogeton pectinatus, Ruppia maritima, and Naias marina. For much more that is interesting we must refer to the original, where Dr. Robinson discusses the evidence adduced in support of the two views of the origin of the islands, namely, by upheaval and by subsidence. He now favours the former, though when working out the late Dr. Baur's collection in 1895, he almost accepted Dr. Baur's theory of origin by subsidence. I do not propose discussing this question here, and I will only add that the *Bulletin of the Museum of Comparative Zoology at Harvard College*, xxiii. (1892), pp. 1—85, plates 1—22, pictorially illustrates the Galapagos Islands better than any other publication that I know. *W. Botting Hemsley.*

* See *Gardeners' Chronicle* for Oct. 8, 1898; March 24, 1900; July 17, 1900; and Sept. 22, 1900.

* *Science Progress*, v. (1896), p. 299.

NEW OR NOTEWORTHY PLANTS.

LYCORIS SPRENGERI, *Comes.*

(SEE SUPPLEMENTARY ILLUSTRATION.)

THIS is clearly a new and distinct species of this beautiful genus. Its distinctive characters are its short, ovate spathe-valves; long pedicels, rosy-pink flowers, without any distinct tube above the ovary; and stamens as long as the perianth, but not exserted. Its nearest ally is Lycoris squamigera, Maxim. (Amaryllis Halli, Hort.), but that has longer, more pointed spathe-valves; perianth with a distinct cylindrical tube half an inch long, above the ovary, and shorter stamens. Whether like that species it has any scales at the throat of the perianth, I have not had any opportunity of ascertaining. Doubtless, like most of the other species of the genus, it is a native of Japan. *J. G. Baker.* [The specimen sent to us by Mr. Sprenger, of Naples, had purplish-rose flowers. Their general appearance is shown in our Supplementary Illustration. ED.]

M. DANIEL'S EXPERIMENTS IN GRAFTING.

WE have on several occasions reported on the experiments made by M. Daniel in grafting, and the results obtained by him. The *Journal de la Société Nationale d'Horticulture de France* for September last also gave an interesting paper, by M. Ed. Bornet, on the experimenter and his work, from which we take the following particulars:—

"M. L. Daniel has for ten years made grafting his special study. Although the practice has been known for centuries, the full explanation of the results of it has but lately been attempted. M. Daniel, by methodised trials, has done much to explain the biological relations between the stock and the graft, one of his most important series of experiments being chronicled under the title: 'Variation in the Graft and Heredity of Acquired Characteristics,' and published in 1899. His affirmative reply to the question concerning this heredity should be found interesting from a biological standpoint, and also for the practical application that may be made of his theories, agriculturally and horticulturally.

Some of these variations are produced directly on the grafted plants by the disturbance in the process of general nutrition caused by the graft. M. Daniel examined them in detail, and showed by many experiments that two causes acting simultaneously, or, in a contrary sense, modify the nutrition of the graft and the stock; these are:—

1. The swelling consequent upon the operation.

2. Differences between the functions exercised n the stock and in the graft.

Other more important variations are caused by mutual reaction between the stock and the graft. This is the newest, but as yet, the least extended side of M. Daniel's researches. In fact, the information is not yet abundant, firstly because the specific influence seems less marked than does the disturbance of the general nutrition, and secondly because the trials have not been directed to these matters. But most of the facts ascertained were discovered by M. Daniel. These are some of them :—Alliaria, grafted on green Cabbage, partly lost its scent, and in part the odour of the green Cabbage became combined with the alliaceous scent, whilst the flavour itself was modified. In grafting the Turnip on the Cabbage, and inversely, there was an increase or decrease in the sugary flavour of the roots of some specimens. Similar variations were observable in the development, form and structure of the vegetative organs, in the inflorescence, the flower and the fruit. Thus the long violet Aubergine, grafted on to the ribbed-fruited Tomato, produced rounded, ribbed fruits.

The experimenter sowed seed furnished by the grafts that appeared not to be immediately influenced by the stock, and some from those plants on which the specific influence was directly shown. In three instances he obtained examples of the transmission of certain characters acquired by the graft to its descendants during several successive generations. He is convinced that in many cases grafting will prove an effectual way of influencing variations in the plant under treatment. The variations obtained will be preserved or increased by the usual methods.

In a report presented to Congrès de l'Hybridisation de la Vigne, at Lyons, in November 1901, under the auspices of the local Société de Viticulture, M. Daniel collated facts relative to specific variations in the graft which he termed a sexual hybridisation, and furnished instances applicable to the Vine.

PLANT PORTRAITS.

RHODODENDRON MADAME JULES FORGÈS.—Hardy variety, with large trusses of mauve flowers, flushed with yellow. It was raised by M. Moser. *Revue Horticole* December 16

THE THERAPEUTIC VALUES OF OUR COMMON FRUITS.

As Professor G. Henslow, at the Drill Hall meeting of November 4, gave a lecture on "The Dietetic Values of our Common Vegetables," perhaps somebody may usefully take up the study of "The Therapeutic Values of our Common Fruits."

In the *Indian Gardening and Planting* of September 18, 1902, there is an extract from the *Lancet* on "The Pine-apple as a Digestive Aid." It is stated that the juice of the Pine-apple has an active digestive principle similar to pepsin, and that if a slice of Pine-apple be eaten after a meal, it helps digestion materially. Further, when a slice of this fruit is placed upon a raw beef-steak, the surface of the steak becomes gradually gelatinous, owing to the digestive action of the enzyme of the juice. This principle has been called "bromelin."

As I have been suffering from a weak digestion for years, I thought I would try some experiments on myself with this Pine-apple juice. What startled me, however, is the price asked for this fruit at this season. For a smallish Pineapple here I paid 3*s.* 6*d.*; for a smallish one purchased at the auxiliary branch of the Army and Navy Stores, I paid 4*s.* 6*d.*; and for a big one, 7*s.* 6*d.* They were all imported ones, I was told, from St. Michael's and Madeira. English Pineapples, like those splendid specimens exhibited at the Drill Hall on November 4 by His Majesty, could not be probably purchased at this season under 20*s.* or 30*s.*, even if they were obtainable in the market.

From the small number of experiments I have made on myself, I think there is a good deal to be said in favour of the Pineapple-juice as a help to digestion. I must, however, wait for more extensive experiments till next summer, when the imported fruit comes in great quantities. I am told that at the height of the Pineapple season, Pineapples can be had on the street-barrows for about 4*d.* to 6*d.* each.

In the meantime, those who grow Pineapples in this country may have facilities for making experiments either on themselves or on their dyspeptic friends. If this new notion about the Pineapple juice is confirmed by further experiments, it will be a boon to that multitude of dyspeptics that are ever recurring to drugs to help their digestion, for fresh Pineapple juice would at all times be a very palatable medicine.

It is stated that in cooked Pineapples the "bromelin" is destroyed. This discovery of bromelin might give a stimulus to the revival of the cultivation of Pineapples in this country, which no doubt has been killed out by the competition of the imported fruits [and excessive cost of fuel. ED.].

Is it possible that when imported fruits, at this season, are fetching from 3*s.* 6*d.* to 7*s.* 6*d.* each, that there would not be a margin of profit on home-grown Pineapples?

The course would seem to be to keep the home-grown fruit in reserve till the glut of the imported fruit is exhausted, when a brisk demand for the home article might be made in winter by a

FIG. 156.—AN ENGLISH MARKET GARDEN: PICKING UP SEAKALE SETS FOR PLANTING. (SEE P. 476.)

FIG. 157.—AN ENGLISH MARKET GARDEN: PACKING GREENS FOR MARKET. (SEE P. 476.)

dyspeptics. If fresh Pineapple juice proves to be a comfort to the digestive organs, a demand is sure to be made for this fruit all the year round, for unfortunately a chronically weak digestion is not curable right out, except by rejuvenation. Now that the therapeutic action of fruit-juices has attracted attention, other fruits may be found to have similar values.

Rumphius, in his *Flora of Amboyna*, mentions that the Chinese give the fruit of a certain variety of Orange to the sick, to invigorate their stomach.

The Papeeta [or Papaw] of India (Carica Papaya) furnishes the papayin of the druggist, which is said to have the same property as pepsin. *E. Bonavia, M.D., Worthing.*

PLANT NOTES.

VIOLET PRINCESS OF WALES.

THIS well-known favourite is the mainstay of many gardeners in the winter months. At Wrotham Park, Barnet, the gardener, Mr. H. Markham, relies almost solely on this variety, and in a long frame at that place I picked recently some blooms with stout stems 9 and 10 inches in length. I was informed that good as they were, much larger blooms had been gathered; the odour is good. I also observed a large bed of this variety outside, from which good pickings had been taken till the frost set in. *Stephen Castle.*

THE USEFUL TAMARISK.

OUR readers, who chiefly know Tamarisk as a valuable seaside plant, will be interested in the following account, quoted in a recent number of the *Agricultural Gazette of New South Wales*, of the usefulness of the Tamarisk as mentioned by Dr. Sven Hedin in his work *Through Asia*. The latter author says that in his journey across the terrible sandy desert of Takla-Makan, the last vegetation he saw—that is, the plants which encroached the furthest into the desert—were the Tamarisk bushes; and the first he met with again, after passing through the worst of the desert, were the Tamarisk bushes.

"We were now," he writes, "entirely amongst the sand. The last of the Tamarisks which still defied the visitation of death was left behind. There was not a blade, not a leaf to be seen, nothing but sand, sand, sand—fine yellow sand, whole mountains of it stretching over boundless spaces as far as the eye, with the field-glass to help it, was able to reach." After travelling for days and days through similar country, at last, "All of a sudden, Kasim stopped short, gripped me by the shoulder, and with widely staring eyes, pointed towards the east without uttering a word. I looked and looked in the direction towards which he pointed, but could see nothing unusual; but Kasim's eagle-eye had discovered on the verge of the horizon the green foliage of a Tamarisk—the beacon upon which all our hopes of safety were now concentrated. We steered our course straight for the solitary tree, taking the utmost precaution not to lose its bearings. At length we reached it. Our first act was to thank God for bringing us so far safe. We revelled in the green freshness of the tree, and, like animals, chewed away at its sappy leaves. It was really alive. Its roots evidently went down to the water stratum. We were now within reasonable distance of open water. The Tamarisk shot up from the top of a sand-dune, and there was not a yard of flat, hard ground anywhere near it. A strange existence these Tamarisks (Tamarix elongata) lead. Their branches and tough elastic stems, seldom exceeding 7 feet in height, are bathed in burning sunshine; while their roots penetrate to an almost incredible depth, and like syphons, suck up nourishment from the subterranean supplies of moisture. In fact, that solitary tree reminded me of a Water-Lily swimming, as it were, on the billowy surface of the desert ocean. . . . I gathered a handful of the leaves, which were not unlike the needles of the Pine, and thoroughly enjoyed the sweet fresh scent they gave off."

COVENT GARDEN MARKET.

IN our last issue we dealt with the fruits and vegetables. We have now to speak of the plants and flowers at Christmastide, and our thoughts naturally turn to decorating our homes and churches with what is procurable at Covent Garden Market at this time of the year. A few remarks as to plants and cut flowers may be of some interest to the numerous readers of this journal. There is a good supply of Palms of several varieties, Chrysanthemums, Marguerites, berried

FIG. 158.—RIBU-RIBU, OR ELEPHANT'S-TRUNK BANANA EXHIBITED AT PENANG.
Length of fruiting portion nearly seven feet.
The gentleman to the right is our correspondent, Mr. Curtis. (See p. 476.)

Solanums, Ericas in three varieties, Azaleas, Genistas, Roman Hyacinths, Primulas, Tulips, red, white, and yellow-flowered; Orange-trees, Richardias, called generally Callas; Poinsettias, now classed by botanists as Euphorbias; Cyclamens, Begonia Gloire de Lorraine, a plant that came into favour with a bound, owing to its profusion of bloom and general decorative value at this season.

Evergreens and Ferns of every description are to be found to meet the requirements of the many. The supply of cut flowers of the Chrysanthemum in several colours is sure to be equal to the demand, large though it be; and a fair quantity of white, pink, and scarlet-flowered zonal Pelargoniums; Carnations; besides white, pink, and red-flowered Bouvardias; fragrant Freesias, the glowing bracts of the Poinsettia, Lilies of the longiflorum and album sections, Lily of the Valley, Richardia spathes, and Eucharis, white and pink Roses, blooms of Orchids of various species, Tulips, Azaleas, Christmas Roses (Hellebores), yellow Marguerites; and for setting off the flowers in stands, bouquets, and decorating dinner-tables, there are Smilax, Asparagus, &c.

A visit to the temporary subterranean French market situated outside the flower market proper, will be found well worth inspection by buyers, quantities of yellow and white-flowered Narcissus, Parma Violets, Roses, Mimosa (Acacia), Wallflowers, Mignonette, Marguerites, Carnations, Lilies, Lilac and French Fern, &c. My advice to those who may be desirous of securing some of the choicest and rarer flowers and plants, is to get to the market in the early morning hours.

As decorative material for churches, halls, and other large buildings, I might suggest some of the more suitable plants. Tall Chrysanthemums, yellow and white Richardias, Palms, Ferns of good height, these making good background plants; and for the fronts of devices, the Marguerites, Ericas, short Euphorbias that are not much drawn up, Cyclamens in various colours, Ferns, and Tulips.

The Holly and Misleto, with their abundant berries this year, are much in evidence, and a variety of Evergreens can be procured in large or small bunches to suit all buyers. Altogether a very remarkable display, the like of which is not to be found elsewhere. *Walter J. Thomas.*

THE PITCHER PLANT AS A PLANT PROTECTOR.

ONE of the greatest enemies to Orchid plants in the West Indies is Blatta americana—the American cockroach. Numerous are the traps devised and the poisons compounded for the destruction of this insect, and yet it does not appear to decrease in numbers, and regular plans of trapping and poisoning must be adopted by the cultivator if he is to keep his Orchids free from these—almost ubiquitous—enemies.

There are, however, natural checks which deserve attention. First among these comes a large spider, commonly though erroneously* known in Trinidad as the "Tarantula."

This spider, with other large species, are very bitter enemies of the cockroach, and assist not a little in preserving the balance of Nature. When it is mentioned that one of these creatures is large enough to capture and kill a full-grown mouse—an occurrence once witnessed in the Herbarium, and recorded in the *Bulletin*, January, 1895—it is easily understood how the cockroach falls an easy prey to it.

Poultry and the larger lizards also feed upon the cockroach. To the barn-yard fowl it appears to be a specially delicate morsel, as is recognised by the negro proverb "When cockroach gib' dance, him no ax fowl."

We have recently observed the help given to the cultivator in the destruction of these depredators by the various species of Nepenthes or Pitcher plants. As they assume full development, the Pitchers developed on the end of the leaves, become filled with liquid, into which the cockroach is apparently attracted and eventually drowned. The liquid contained in the pitchers is of a similar character to the gastric fluids of the human stomach, and renders any animal-matter fit for absorption by the plant, so that the cockroach is ultimately digested as plant food.

The Nepenthes have been found to be so useful for this purpose that they have been deemed advisable to largely increase the number of these plants among Orchids, as the damage done by the cockroach has been largely decreased by their aid. The various species of Nepenthes thrive well in the climate of Trinidad, and are grown in suspended baskets made of Cedar-wood, in a similar manner to Orchids. *Bulletin of the Trinidad Botanic Garden, October*, 1902.

* Lycosa tarantula, the true tarantula, is only found in Southern Europe, and differs in many respects from the West Indian insect, which has been determined as Eurypelma versicolor, Wallk., and is sometimes spoken of as a species of Mygale.

NATAL.

TALANA HILL, DUNDEE, NATAL.

ON Talana Hill the British had the first battle with the Boers on their invasion of Natal, a day or two after the Boer ultimatum. Here I found a few species of interesting plants I had not met with elsewhere along the bottom of the hill, but as I ascended, the number of species diminished. Amongst the bulbous plants on the hill was Anamotheca cruenta; there were also a great many spotted-leaved Aloes, seed of which I collected, to distribute gratis amongst those who have had losses at this battle. On reaching the summit of the hill, I found an extensive and elaborately laid-out saugar, and a few other saugars of one kind and another for shooting from but I learned that these were built on the second occupation.

In the large saugar I found two well-constructed ovens, the handiwork of Mr. Tommy Atkins, also a few others in ruins. I picked up three army order-books, being the only souvenirs I have been able to find so far on the battlefields, as thousands of persons, both black and white, had searched the ground in every direction, carrying off every article that could be valued as a memento of the battle.

Having traversed the Hill, I descended by the northern slope; here the herbage was coarse, and just burned, so that the cattle may nibble the young growth. Crossing the open grass-land over which our soldiers approached the plantation of Gums, I found in seed a dwarf plant which might be a Scilla, with short and narrow leaves, and a bulb the size of a small Walnut. I collected a few bulbs and some seed; these I am sending to my sons, who will share the bulbs with Kew, Cambridge, Glasnevin, and my friend Max Leichtlin. *Peter Barr, V.M.H., Dundee, Natal.*

The Week's Work.

THE ORCHID HOUSES.

By W. P. BOUND, Gardener to J. COLMAN, Esq., Gatton Park, Reigate.

Masdevallia tovarensis.—At this season M. tovarensis is liable to suffer from damping; still, it is necessary to afford as much water as will enable the flower-spikes to develop. Place the plant in a light part of the intermediate-house, where the air is buoyant, not close. The materials in which the plant is grown should be rather dry before water is applied, and then only as much applied as will moisten it. With this kind of treatment, damping-off should not occur.

Ansellia africana.—The flower-spikes are now appearing at the top of the new pseudo-bulbs. Usually the gardener grows the plant in too warm a house, whereas the intermediate-house is the best place adapted for it at all seasons. The plant should never be allowed to get very dry at the root; and from this date until flowering ceases, a well rooted plant should be freely afforded water. Potting may be performed when the young growths have made a fair start into growth, using a compost that consists of equal parts of peat, the turfy parts of loam, and some leaf-soil, together with crocks broken small. Pots should be used, and a fair amount of drainage material put into them to allow of the copious applications of water needed by the plant when it is in active growth.

Maxillaria ochroleuca.—In order to preserve the leaves of this plant from spotting, it should be afforded a place during the winter in the warm part of the intermediate-house. Although this plant is making growth and producing flowers at this season, water should be afforded sparingly. If repotting is required by the plant, it will be found that the early spring is the best time. Employ the turfy parts of peat, chopped sphagnum, and leaf-soil, and pots are more suitable than other receptacles. The drainage materials may consist of Fern rhizomes.

M. luteo-alba.—This plant is now going out of flower, and but a small quantity of water need be afforded. A place in an intermediate-house will meet its requirements during most of the year, and the withholding of most of the usual quantity of water given during growth and flowering, at this season will afford the plant the necessary amount of rest.

Odontoglossum Uro-Skinneri.—The new growths will now be advanced far enough to enable repotting or the renewal of the surface materials to be carried out. A suitable compost consists of the turfy parts of peat two-fifths, chopped sphagnum two-fifths, and leaf-soil one-fifth. The rhizomes of Ferns extracted from the peat makes the best kind of drainage, the pots should be filled to one-third of their depth with these, and to enable the roots to penetrate readily, potting should be lightly done, keeping the base of the plant slightly above the rim of the pot, and inserting on the surface several clumps of live sphagnum-heads. This variety requires more warmth than the cool-house affords, and the cool intermediate-house is a more suitable place for it. Apply water sparingly till the new roots have seized upon the new materials.

FIG. 159.—THE TEA-PLANT AND SUGAR-CANE GROWING TOGETHER IN THE STATE NURSERY, MACKAY, QUEENSLAND. (SEE P. 476.)

THE KITCHEN GARDEN.

By T. TURTON, Gr. to J. K. D. WINGFIELD DIGBY, Esq., Sherborne Castle, Dorsetshire.

Trenching.—Although frost was continuous for nearly a fortnight up to the time of writing, in the West of England it was not sufficient to stop work on the land, and good progress has been made. Land for early Peas, Onions, &c., having been dealt with, that for the undermentioned subjects should be put in hand and pushed forward with all despatch whenever it is possible to do so. Up to date the frost has been kept out of the land by covering it with the manure which will be trenched into it. Should snow occur, either shovel it off the land to be dug, or wait till it has disappeared, as to bury it in any quantity lowers the temperature of the soil, causing slow growth in all sorts of crops for several months.

Seakale.—The land to be planted can scarcely be made too rich, and the plantation should be afforded a sunny position, in soil that is of good

depth. It should be trenched 2 feet deep, and after loosening or digging the bottoms of the trenches, place garden refuse or strawy litter thereon, with a layer of dung at 1 foot from the surface. The latter, if the land is retentive, should be left in as rough a condition as possible.

Asparagus.—If new plantations are to be made by sowing seeds or planting one or two-year-old plants on the flat or in raised beds, the land must be thoroughly prepared by heavy dressings of manure, and by trenching. If stable-dung be employed as manure, it should be of the best class. Road-side trimmings which have been stacked for not less than twelve months, or any loamy soil which has done service in hot-bed frames that can be spared, or that from under the potting-bench, are excellent for improving the staple, and being used in quantity, will raise the ground above the natural level, more particularly useful when the soil consists of stiff loam or is clayey. Very little of the subsoil of such land should be brought to the surface.

Rhubarb succeeds best in a strong, loamy, well-manured soil, deeply trenched. It is well to put a quantity of manure at the bottom of the trenches, and some more at about 15 inches below the surface.

THE FLOWER GARDEN.

By R. DAVIDSON, Gardener to EARL CADOGAN, Culford Hall, Bury St. Edmunds.

Humea elegans.—If these plants are employed in outdoor gardening, they should shortly be repotted, as during the past six weeks the plants will have been almost pot-bound, and with the turn of the year any longer cramping of the roots should cease. The pots (thoroughly clean ones) should be 7 inches in diameter, and well drained. Make use of a rich turfy loam, a little decayed manure, with about a quarter of the entire bulk consisting of sharp silver sand, with a little charcoal added. Remove with a sharp-pointed stick some of the soil at the side of the ball, after releasing some of the roots. When potted, stand them in a light, airy house or pit, where a warmth of not less than 50° is maintained. If the soil in which they were potted was fairly moist, no water will be necessary for a week or ten days, when enough should be applied as to thoroughly moisten the ball; but at no time should these plants be kept excessively moist.

Abutilons.—Cuttings struck in the autumn of A. Sawitzii and others, with a view to growing them on for planting out next summer, should now be repotted in loam two-thirds, peat and road-grit (or sand) one-third. Let the pots be well drained, the plants requiring much water when growing. This variety should be kept in a growing state in order to have plants of a good size in May.

Work in General.—Vacant patches of ground in shrubbery borders should be dug as deeply as the nature of the soil and space at command free from the roots of the shrubs will allow, and spots intended to be planted with sub-tropical species, mostly gross feeders, should receive a heavy dressing of stable-dung. Should the weather be unfavourable to outdoor work, labour may be profitably employed in preparing and neatly dressing a good stock of stakes for Dahlias, Hollyhocks, Sunflowers, and other tall plants. For plants of small growth, and herbaceous plants generally, Bamboo rods are neat and durable, and may be bought at cheap prices. Old stakes, &c., may be sorted into sizes, tied into bundles, and stored. Make and clean labels, sorting them into sizes, and putting them into store. Prepare wooden pegs for fastening down different kinds of trailing plants. Gather materials for filling flower-seed pots, pans, &c., and store under cover. Do not use seed-pans or pots that are not quite clean inside and out.

FRUITS UNDER GLASS.

By JAMES WHYTOCK, Gardener to the DUKE OF BUCCLEUCH, Dalkeith, Scotland.

The Earliest Peach-house.—The flower-buds on the trees started last month will now be opening, and it will be necessary to afford night and day sufficient fresh air as will cause a gentle circulation; and keep the warmth, especially at night, rather low. Apertures towards the top of the back wall do this better than any other arrangement that can be adopted for wintry weather. Do not employ strong fire-heat at the present stage, and on very cold nights let the temperature drop to 45°, and on mild nights to 50° to 55°; in the forenoon, with sun-heat and without fire-heat, the temperature may rise to 65° or 70°, affording air in small amount, but not admitting cold, cutting winds; in any case, the day temperature should be 10° higher than that of the night. When the flowers are expanding, search for ripe pollen, which distribute with a camel's-hair pencil, the finger and thumb, or by means of a slight syringing on bright forenoons, the ordinary syringing at this stage being stayed for a time. Damp the house, floors, walls, &c., occasionally, and obtain a buoyant genial atmosphere in the house.

Later Peach-house.—Trees from which fruits are expected at the end of the month of May and later, and which may consist of Cardinal and Early Rivers' Nectarine, Amsden June, Early Alexander, and Stirling Castle Peaches, may now be closed, the house-trees and border having been cleansed and otherwise put in readiness for forcing. If the weather is frosty, afford slight heat in the hot-water pipes, maintaining a night temperature of 45°; and generally the conditions to be observed are such as were advised for the earliest house. Make sure that the borders are properly moist at starting, so that no water will be required till the flowers are set.

The Late Vinery.—Bunches of Grapes still hanging on the Vines will need careful watching; apply a small amount of heat in the forenoon, with air afforded by the upper ventilators on days that are fine, and not damp or foggy. At night the temperature of the vinery should be steady at 45°. Grapes are much easier preserved at this season if the border is in a moderately moist condition; and if it should be necessary to apply water, do so about 8 o'clock A.M. If hay or straw has been used to cover the border, return this after the surface has dried somewhat. Remove all plants needing water from such houses, and all decaying leaves. Examine the bunches of Grapes every other day, cutting out bad berries. If there is a Grape-room, put the bunches into bottles, and thus afford the Vines a longer rest than could otherwise be afforded.

THE HARDY FRUIT GARDEN.

By J. MAYNE, Gardener to the Hon. MARK ROLLE, Bicton, Budleigh Salterton, Devonshire.

Apricots.—The pruning and training of the Apricot may now be undertaken on days when the men can work with comfort. The largest fruits form, as a rule, on the wood of the previous year, and shoots of middle size should be laid-in thinly. After a season like that of 1902, it may be necessary to shorten back some of the less well matured shoots. The Apricot also bears on spurs, which are produced by summer pruning; and assuming that this operation was carried out at the proper time, not much pruning will be required, save that of shortening back to about the third basal bud, shoots so operated upon. Fan-training is the more appropriate method, the branches of the Apricot being liable to die back, and this mode affords the readiest means for re-adjusting the branches. Let all wall nails used be kept clear of the branches, in order to guard against risk of gumming.

The Peach and Nectarine.—The pruning of these trees is often put off till February, although it is quite easy to distinguish wood-buds from fruit-buds, and the work should be commenced. Here, again, the knife will be required sparingly if the instructions given in these calendars have been attended to. The shoots that bore fruit the past summer should be cut out, as well as all shoots that are dead, barren, and unhealthy. I prefer to prune the trees before they are loosened from the wall or trellis, the pruner being then in a better position to determine which shoots should be dispensed with. Unripe shoots should be cut back to a wood-bud on the upper side if possible, using the pruning-knife in preference to a *sécateur*. The Peach bearing principally on wood made the previous year, it is necessary to reserve the best-ripened shoots for training-in, and remove all weak or ill-placed ones, or shortening them in some cases to a wood-bud to form spurs. As soon as taken from the wall, the trees should be washed with soft-soap and flowers-of-sulphur, made into a good lather, well working it into all crevices on the old wood, and passing a soft paint-brush gently over the young wood from base to point. Where it is the practice to keep the trees away from the wall until spring, with a view of retarding the flowering period, although I doubt the wisdom of it, stakes must be placed in front of the trees, to which to tie the branches in small bundles. In training, see that the main branches are equally adjusted, so far as is possible, on either side of the tree, getting these in position first, and laying in the young wood from 2 to 3 inches apart, so that a young basal shoot can be laid-in between them. See that enough space is allowed for these shoots.

PLANTS UNDER GLASS.

By J. C. TALLACK, Gardener to E. MILLER MUNDY, Esq., Shipley Hall, Derby.

Winter Carnations.—Those plants which have already given their best flowers should now be producing strong side shoots fit for making cuttings, and as early propagation lays the foundation of good plants, this will soon require attention. In the south it may be delayed till the end of the month of February and early in March, but in other parts January is a good month in which to make a start. I have tried autumn propagation with a view of lengthening the growing season, but except in the case of the variety Sir Redvers Buller, a naturally slow grower, nothing was gained. The shoots should be about 3 inches long, taken off at the base, the lower leaves trimmed off, inserted singly in very small pots, which are perhaps the best receptacles where only a few are grown; or in shallow boxes filled with very sandy fresh soil, and placed in bottom-heat of 70° and top-heat of 60° to 65°. If boxes are employed, there is a saving of labour and space. Shoots from plants which show signs of disease, or the growth of which has been checked through water-logging of the soil, should not be taken.

Winter zonal Pelargoniums.—The propagating season for these plants will soon be here, and as the flowering is drawing to a close, an endeavour should be made to obtain good stocky shoots by placing the plants close up to the glass in a dry position with just warmth enough afforded as will keep them growing. Very little water should be applied, as the shoots must be firm and sound when taken off.

Libonias.—Here again preparations for propagating must be made by cutting back some of the forward plants and re-starting them in a warm house or pit. They require an early start, and to be grown quickly on, to the time when they have to be matured for flowering.

Bouvardias which have gone out of flower should be moved into a rather cooler house, and allowed to get somewhat dry at the roots, in which condition they must remain for some weeks.

Fuchsias.—A few old plants may be pruned, and started in gentle heat for the production of cuttings; and the general stock should be examined, and if any are getting shrivelled in the bark, spray them at intervals of a few days, but afford no water at the roots. Autumn-struck plants still in the cutting-pots may be potted, and placed in a forcing-house having a moderate degree of heat.

Pandanus Veitchi.—The old plants should be stripped of the best coloured suckers before being thrown away, and the suckers either potted singly in small pots forthwith, or laid-in in cocoa-nut fibre in the propagating pit.

New Plants.—Where notes have been made throughout the year of plants to get from the nurseries, these should be looked up now before the seed order is sent off. In most years notes in praise of some annual which one has not grown, or which has been discarded, but which might suit one's present requirements, appear in the gardening press, but they generally come in the flowering season when it is too late to buy for the current year, and plants are likely to be forgotten.

EDITORIAL NOTICES.

ADVERTISEMENTS should be sent to the Publisher.

Letters for Publication, *as well as specimens and plants for naming, should be addressed to the* **EDITOR, 41, Wellington Street, Covent Garden, London.** *Communications should be* WRITTEN ON ONE SIDE ONLY OF THE PAPER, *sent as early in the week as possible, and duly signed by the writer. If desired, the signature will not be printed, but kept as a guarantee of good faith.*

Illustrations.—*The Editor will thankfully receive and select photographs or drawings, suitable for reproduction, of gardens, or of remarkable plants, flowers, trees, &c.; but he cannot be responsible for loss or injury.*

Local News.—*Correspondents will greatly oblige by sending to the Editor early intelligence of local events likely to be of interest to our readers, or of any matters which it is desirable to bring under the notice of horticulturists.*

SALES FOR THE WEEK.

TUESDAY, DECEMBER 30—
280,0 0 Lilies of the Valley and Palms, at Pollexfen & Co., Pilgrim St., London, without reserve, at 12.30.
WEDNESDAY, DECEMBER 31—
320 Cases of Lilium auratum, at Stevens' Rooms, at 2.30.
FRIDAY, JANUARY 2—
Imported and Established Orchids, by Order of Messrs. Stanley, Ashton & Co.—Orchids in Flower and Bud, at 67 and 68, Cheapside, by Protheroe & Morris, at 12 30.

(For further particulars see our Advertisement columns.)

AVERAGE TEMPERATURE for the ensuing week, deduced from Observations of Forty-three Years at Chiswick —37·1°.

ACTUAL TEMPERATURES:—
LONDON.—*December* 22 (6 P.M.): Max. 51°; Min. 48° *December* 23 (9A.M.).—51°; overcast; mild.
PROVINCES.—*December* 23 (6 P.M.): Max. 50°, Scilly; Min. 41°, N.E. England.

The Old Year.

LOOKING back upon the events of the year now at its end, we may well say "The web of our life is of a mingled yarn, good and ill together." It has been a year of brilliant promise and great expectation; a year of consternation and apprehension, of anxious dread and profound relief, a year of hard work and diligent preparation; a year, if not of failure, yet one of disorganisation and disappointment.

As a nation we have passed through all these phases. The solidarity of our race was, however, amply shown in the peace rejoicings, in the closer bonds knitted between the parent stock and the colonial scions, in the pride and hope engendered by the Coronation, in the dismay occasioned by its necessary postponement, in the apprehension caused by the illness of the KING, and in the relief and gratitude experienced at his recovery. These circumstances did but knit us the more firmly together, and serve to show how much stronger are the ties that connect us than are the little differences that divide us.

All these phases have been reflected in our own special department. In reviewing the principal events in the gardening world we might appropriately make use of the same words and draw the same inferences. We all know how greatly our operations were affected by the preparations for the Coronation, and by its subsequent postponement. All our work, practical, scientific, literary, æsthetic, commercial—especially commercial—was more or less affected by the memorable events of the year 1902; a veritable *annus mirabilis* as it has proved.

The effects were so general and so uniform in their results that there is the less necessity to particularise, but some at least of the more prominent events invite comment. Among them we may mention the proposed new Hall and Offices for the Royal Horticultural Society. This subjec has been treated, and rightly so, as if it were a national mat r, and not one confined to the interests of a articular Society. We have an illustration of this in the friendly attitude and co-operation assumed by the special Societies. It will be remembered that by an overwhelming majority, and at more than one meeting, it was affirmed that the best means of celebrating the approaching Centenary of the Society was by the erection of an adequate exhibition hall and offices for the Royal Horticultural Society. An outside Committee was appointed to assist the Council in discovering a suitable locality. This was eventually done, and through the patriotism, if we may so call it, of Baron Sir HENRY SCHRÖDER, the site has been secured. That site has met with general approval as, on the whole, the best that could be obtained. The Committee reported. The Council then took up the matter, consulted an architect, who prepared plans. Then *surgit aliquid amari*. It was soon found that the amount that had been roughly estimated as sufficient was by no means adequate. The plans were accordingly revised from time to time, and every effort made to reduce superfluous expenditure. At length, after repeated excisions, the plans were published. Great was the outcry. It is quite true that from an æsthetic point of view not much can be said in their favour. Appropriateness to purpose is, however, the main consideration, and finance the all-important factor. It would be easy to secure a more imposing design, and one less open to criticism. We should all be so much better satisfied if a nobler frontage and a building of greater architectural pretension, and greater beauty of proportion, could be erected.

There is one way, and only one way, of securing this desirable end, and that is by very largely augmenting the present subscription list. It has become evident that a much larger sum than was originally contemplated must be forthcoming, not only for the erection of the building, but for its future maintenance and the payment of the inevitable annual outgoings. There is no reason for despondency at the outlook; an excellent beginning has been made, and we must persevere in our endeavours to achieve success. We refuse to believe that the horticultural community, now so large and so influential, will do anything but carry the project to a successful termination. The Coronation had to be postponed, but it was eventually celebrated in all due form. The completion of our Hall may be postponed, but it must be accomplished. If those critics who are so loud in their condemnation of the plan as proposed would turn their energies to the acquisition and accumulation of the necessary funds, a more satisfactory design would soon be forthcoming. We appeal to their loyalty to do this, and not to dissipate energy in criticising matters of detail. Funds are the desideratum, not criticism.

Of the various metropolitan exhibitions that were held in the summer, most or all were affected by the current events to which allusion has been made. The Temple Show was visited by the KING and QUEEN, and the KING subsequently made a substantial donation to the fund for erecting a Hall; in which he was followed by H.R.H. the Prince of WALES, who by that act showed us not only how to "wake up," but provided us to that extent with the means of doing so.

The show held in the grounds of Holland House, by the kindness of the Earl of ILCHESTER, was a most grateful change from the stereotyped exhibitions to which we are accustomed. We need not further allude to the blight that fell upon it on that fateful afternoon in June; more pleasant is it to look forward to the occurrence of another show in the same attractive spot in the forthcoming summer.

We should be doing an injustice to Ireland if we omitted to make special mention of the great fruit show held at Cork in the autumn; by the acclamation of all who saw it, it was one of the finest displays of hardy fruits ever got together. Most heartily do we wish that it may be the means of establishing a profitable industry in the sister isle.

The rejuvenescence of the historic Physic Garden at Chelsea, which has now entered upon a renewed career of usefulness, was also one of the most interesting events of the year.

The season, climatically considered, was a very bad one. We had only a few scraps of fine weather between long spells of gloom and low temperature. As a result of this, the fruit crops were wofully deficient, and flowers were very late, and generally wanting in size and brilliancy of colour. Fungous diseases, especially among Melons and Cucumbers, were very prevalent. The necessity for adopting more rigorous methods of prevention is gradually forcing itself upon the minds of those who grow for market. At present they do next to nothing in this way, and hence diseases in Tomatos, for instance, have become much more prevalent than they would be if due care were exercised. While adverting to this subject, we may allude to one of the discoveries of the year, and that is as to the real nature of the so-called "Silver-leaf disease" of Plums and allied trees, the cause of which has long been a mystery. Professor PERCIVAL has succeeded in showing that the disease is due either to a "ferment," or to some injurious influence secreted in or exerted in a particular fungus (Stereum); but before this explanation can be fully accepted, it needs to be confirmed by other observers.

Forcing by means of exposure to the vapour of ether is another subject to which the attention of our market growers should be called. As we have only recently adverted to the matter, it is not necessary here to do more than mention it, in the hope that its practical value may soon be tested here.

The unrestricted sale of poisons by other than qualified pharmacists has received much consideration. It is felt as a grievance that horticultural traders should not be permitted to sell, for horticultural purposes only, preparations known to be of great value for the particular purposes for which they are intended, but which are of the most dangerous character. At present, or up to recently, the means taken to make the poisonous nature of these substances known to the purchaser were quite inadequate. We have ourselves purchased insecticides and weed-killers in considerable quantities, and of the most frightfully poisonous character, without any indication being given on the label or otherwise of their dangerous nature. Whilst

LYCORIS SPRENGERI; FLOWERS ROSY-PINK: DRAWN BY WORTHINGTON G. SMITH.

qualified druggists are only allowed to sell poisons under certain restrictions, it seems to have been assumed that ironmongers, corn-chandlers, and others who have no special acquaintance with the nature and properties of the particular substances could do so without reserve or precaution, but this is not so. No doubt some measures will be adopted of doing away with any objectionable monopoly, and at the same time of safe-guarding the interests of the public. There is, of course, no reason whatever, why poisonous substances should not be sold for agricultural or horticultural purposes by dealers, if proper precautions, similar to those now imposed by law upon the druggists, are adopted.

The obituary record of the year is not only a full one, but it includes the names of many of our foremost men. Among horticulturists we have to lament the loss of such men as E. J. Beale, William Bull, Selfe Leonard, G. F. Wilson, C. J. Grahame, C. Maries, R. Crossling, Gen. Collett, A. W. Bennett, Mungo Temple, David Syme, Sir Daniel Cooper, G. S. Jenman, C. Fisher, Dr. Prior, and many others; whilst among our Continental friends and colleagues we have lost Micheli, Celakovsky, Rodigas, Joly, Heldreich, Dehérain, Millardet, all men whose places it will be difficult to fill.

Strictly speaking, we ought to include in this brief summary a notice of the more important of the new introductions to our gardens during the year. But this is too long a record to be inserted in the present number, and we must, as to this matter, postpone to the New Year the record of the achievements of its predecessor.

*** **Our Almanac.**—According to our usual practice, we shall shortly issue a *Gardeners' Chronicle* Almanac for the year 1903. *In order to make it as useful as possible for reference, we shall be obliged if Secretaries of Horticultural, Botanical, and allied Societies, or any of our correspondents, will send us* IMMEDIATE INTIMATION *of all fixtures for the coming year.*

Kew Seed List.—From the Royal Gardens, Kew, we have received a list of seeds of hardy herbaceous plants, and of trees and shrubs collected during 1902. The seeds are available only for exchange with other gardens and regular correspondents. Application should be made before the end of March, 1903. The list occupies thirty-seven 8vo pages in double column.

Fungus Diseases of Australian Stone-Fruit Trees.—The Department of Agriculture of Victoria has issued a pamphlet on this subject, drawn up by the Government pathologist, Mr. D. McAlpine. It is interesting not only to Australian fruit-growers, but also to those in the mother country, as the diseases are mostly the same, or require to be dealt with in the same manner. Numerous coloured illustrations and representations of microscopic appearances are given. We find that the splitting of Peach-stones is conjecturally attributed to a fungus-mould, Rhizopus schizans, which is generally present in such fruits, causing rotting of the fruit, and probably splitting of the stone. The book, which may be had from the Department of Agriculture, Victoria, is one that should be consulted by all who have to deal with this class of plant diseases.

"Meehans' Monthly."—It is with great concern that we learn that this valuable American publication is to be discontinued. It occupied a position in American horticultural literature that no other periodical did. A few years ago we had to deplore the discontinuance of *Garden and Forest*—a very serious loss; and now the cessation of *Meehans' Monthly* seems to point to a lamentable lack of interest in plants and plant culture in the States, except for purely commercial purposes.

"The Pacific Florist," who is clearly not to be classed as a dissatisfied exhibitor, announces the holding of a Citrus Fair in San Francisco, under the auspices of the State Board of Trade. The deciduous fruits on exhibition will embrace a choice and wonderful collection of the following varieties: Oranges, Lemons, Limes, Pomeloes, Persimmons, Pomegranates, Olives, Olive-oil, wines and brandies, Nuts, Apples, Pears, Peaches, Grapes, Almonds, Walnuts, and dried and deciduous fruits of all kinds.

"Who's Who?" — This is the fifty-third annual edition of a biographical dictionary containing a brief summary of the careers of men prominent in all departments of work. It is, of course, indispensable as a book of reference. Outsiders who may be puzzled as to the meaning of "V.M.H." will find enlightenment in the list of abbreviations. It is published by Adam & Charles Black.

"Baby Roland Booklets."—We have received two of these records of the life of Baby Roland—*His Calculations* and *In Company*, and can only say that they are as pleasing as were former booklets of the series. Mr. George Hansen shows us snapshots of the two-year-old child—happy, puzzled, interested, fascinating, in all his moods and always natural, Baby Roland will find many friends on both sides of the Atlantic. The publishers of these novel and interesting studies of child-life are Elder & Shepard, San Francisco.

Mr. Geo. Cole.—This experienced Orchid cultivator in the gardens of R. Brooman White, Esq., Ardarroch, Garelochhead, N.B., is unfortunately under the necessity of relinquishing his employment and seeking a situation in a milder climate, on account of his wife's health. He is a relative of "the Coles" of Withington, Manchester, the famous plantsmen.

"Returned Empties." — The question of empties has always been a source of annoyance and loss. The evils connected with them are by no means adequately recognised. We have often pointed out the lamentable consequences which may occur from the use of diseased Potato-haulm as packing material. Even lately we have seen in the market, baskets of Potatos sent with diseased haulm at the top to fill up; and Mr. Massee has called attention to the spread of the Cucumber disease in previously uninfected establishments from the introduction of returned baskets. A correspondent reminds us—we fear in a sarcastic tone, though amply justified in so doing — how returned empties, "sieves," &c., used to be piled up on the top of waggons laden with reeking manure, such as might have been seen any day along the great high roads leading from London into the market garden districts. Of course, this took place in the old days; but in these enlightened days of sanitary progress, the same filthy habits are not practised! Nowadays, all returned empties are carefully washed in disinfecting fluid, and waggons used for the cartage of vegetables or fruit are never used for the conveyance of manure (?). How many cases of enteric fever, diphtheria, and similar diseases, were attributable to the unsanitary condition of our market waggons can never be known; but, of course, it is all altered now. County councils and officers of health have done away with such sources of infection, as surely as they have safeguarded the lieges from the danger of partaking of sewage-fed oysters!

Pure Mushroom Spawn. — Mushroom growers know too well how many things besides Mushrooms come up in their beds however carefully prepared. The conditions under which the spawn is collected and prepared, fully account for this undesirable intermixture. It is possible in the laboratory to cultivate the genuine species apart from intermixture; and according to a statement in the *Revue Horticole*, the Pasteur Institute of Paris supplies tubes containing the pure spawn of the Mushroom.

Etherising Lilacs before Forcing.—We have had the best of success by the method, using it for procuring blooms for a stated time. Just six weeks before you desire the blooms, take Lilac-plants that have been kept in pots, either the ones forced before, or new plants potted in advance for the purpose, and place them under a tight box. Put the plants on the ground, close together, and turn a large box over them; then place a 10-ounce bottle of ether, with the cork removed, under the box with the plants; bank up all around the box with soil, and see that the box is as near air-tight as possible. Let the box stand for forty-eight hours; then remove the plants, and treat them in the same way as if you had dug them in the winter for spring forcing. If you follow out these directions, you can bloom this plant at your own will. I believe this treatment would apply to other plants, but have not tried it on anything but Lilacs. *F. W. B., in "American Florist."*

"Icones Selectæ Horti Thenensis."—M. de Wildeman continues his illustrated publication relating to the fine botanical collections accumulated by M. van den Bossche in his garden at Tirlemont, Belgium. We have already had occasion to note the excellence of the illustrations, and the care and perspicacity exercised by M. de Wildeman in his critical remarks. These are principally addressed to botanists, but they will also be of service to horticulturists desirous of making themselves acquainted with the names and characteristics of the plants they cultivate. In fascicle 5 of the third volume is an illustration and description of Cereus hamatus, from which we extract the following particulars:—"Cereus hamatus has flowers that are distinctly bi-coloured, or it might even be said that they are multi-coloured, owing to the fine gradation of tints shading from pure white to chocolate-brown through yellow exhibited by the two rows of petals, and the bractiform envelope borne by a succession of from thirty to forty flowers that open one after the other for some twenty days, and this generally in the latter part of the afternoon, and keeping nearly fully open until the middle of the following day." Haworthia cymbiformis is another plant of interest to gardeners. Rhamnus latifolius is, it appears, the correct name for the plant known in gardens as R. oleifolius. Senecio articulatus is the accepted name for the plant known in gardens as Cacalia laciniata, or Kleinia articulata.

New Varieties of Potato.—Last year, in a lecture on Potato-growing, we mentioned the fact that the name of a Potato not yet in the hands of farmers and gardeners, would be a familiar household word in the course of a very few years. That name was the Northern Star. It is a familiar name already. Last year it was put on the market at 10s. per lb., or at the rate of £1120 per ton. This year, with the increased supply of harvest, it was purchasable at 5s. per lb.; but its successful stand against the disease, and its great cropping and high quality propensities became bruited abroad, and it is now purchasable only at 10s. per lb. It does not take a very skilled mathematician to calculate that at £1120 per ton, an acre yielding 10 tons would work out at £11,200 per acre. There may be those who would say such a thing is impossible, but to do this they would have to

kick against the hard fact that the producer grew 17 tons, and has sold 7 tons. Those who have no experience in developing new breeds would argue that it is impossible to grow a crop worth £1,000 per acre, but as he has sold several thousand pounds' worth off less than an acre, their opinion is not worth much. So far as its cultivation goes, the Bruce may be regarded as the greatest Potato of the past decade. The success of the Up-to-Date gave further stimulus, and when the British Queen came out there were more developers, and these in their turn did well. Three years ago the Evergood and Empress Queen made a record by being brought out at the rate of £400 per ton, and those who were on them early have reaped a wonderful profit. *W. J. Malden in the "Agricultural Annual."*

OUR ILLUSTRATIONS.

It is fitting that in a number issued during the Christmas week our illustrations should have some relation to the subjects of eating and drinking, which occupy so much attention at this season! It is well, also, to remember our little ones at home, as well as our kith and kin beyond the seas, and the way in which they contribute to our supplies of good things, and all these things are covered by our figures.

Two illustrations (figs. 160, 161) show Mushroom Ketchup, as it should be, and as it sometimes is. The article bought in the shops is seen to be, sometimes at least, destitute of Mushroom spores.

Two of the cuts represent scenes in a Middlesex market garden, which will serve to show how and by whom the work is effected. Fig. 156, p. 470, shows women engaged in selecting Seakale-sets for planting. Mr. Locke, from whom we obtained the photographs, grows about 45 acres of Seakale for market. The Kale is ploughed up in autumn, the crowns forced, and the roots are broken off, and cut into lengths of about 3½ to 4 inches, which are called "sets." They are then buried in soil, and are sorted over in May for planting. As a rule, he requires about 2,500 bushels of sets to plant for his requirements.

The next illustration (fig. 157, p. 460) shows women employed in packing Greens for Covent Garden market, in the early spring. The Greens are cut and packed in bushels and weighed, the weight of each bushel of Greens is 45 lbs., and in the busy season Mr. Locke sends away from 900 to 1,100 bushels per day. The work is done by the piece. In future issues we shall give other characteristic market-garden scenes at home and abroad.

We now pass to far-off Penang, whence our valued correspondent, Mr. Curtis, sends us the following note:—

"An agricultural show in the east, especially in the Straits Settlements, where the population consists of a variety of races, affords an opportunity of seeing not only the best articles in their respective classes, for which prizes are offered, but extraordinary and abnormal things in the way of both live stock and vegetable products. It is impossible to get many natives to understand that this is not the main, if not the sole reason, for the show being held. On one occasion a Chinaman brought in a malformed Tapioca-root having some resemblance to a man's hand, and was highly indignant at not getting a prize, the ground of his complaint being that all the other articles in the show were produced by man, but this was 'the work of God!'

"At a recent exhibition held in Penang, the usual number of curiosities was on view, and among them three Banana plants, including two examples in which owing to some weakness in the rind, the flower-spikes has pushed its way through the stem in an unusual manner. The other is a perfectly normal bunch of the variety known as ribu-ribu—literally, thousands and thousands—shown in the accompanying photograph at fig. 158, p. 471. It is also known in some places as the elephant's trunk. The length of the fruiting portion is nearly 7 feet, and the number of fruits 2163. The fruits are small, yellow, and by no means ill-flavoured, but are not to be compared to the many excellent varieties shown in some of the collections, some of which included two dozen varieties, quite distinct from each other."

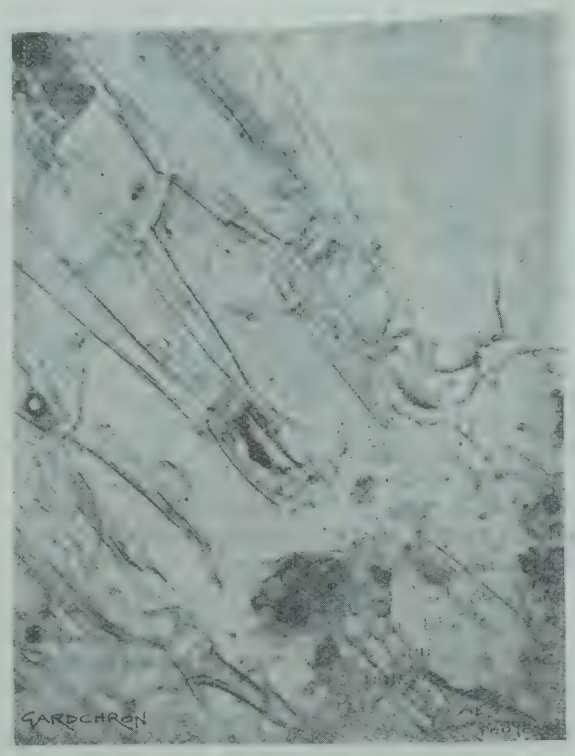

FIG. 160.—ONE OF MANY SPECIMENS OF COMMERCIAL KETCHUP, WITH NO MUSHROOM SPORES. (× 300.)

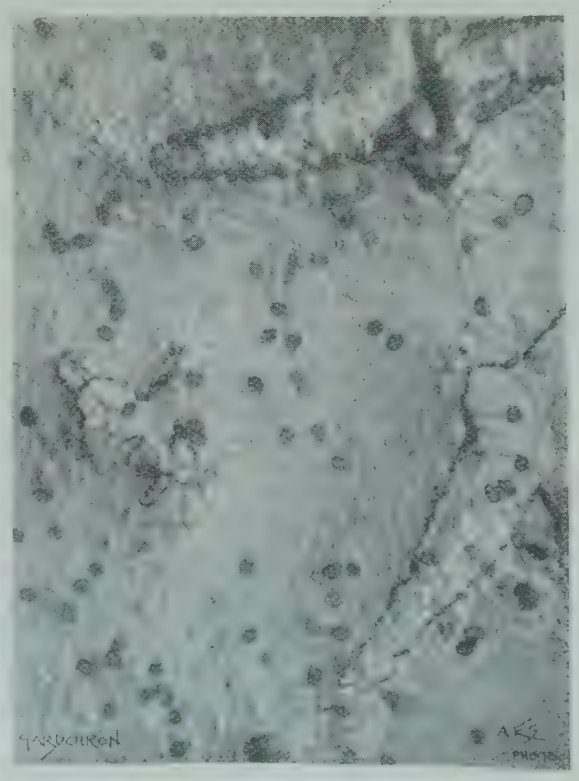

FIG. 161.—HOME-MADE KETCHUP, SHOWING THE NUMEROUS MUSHROOM SPORES. (× 300.)

"Queensland is even further off than the Malay peninsula. Our illustration (fig. 159, p. 471) shows how the Queenslanders are striving to supply us with both Tea and Sugar. Mr. Buchanan, who sends us the photograph, will be remembered as gardener to the late Sir W. Siemens, and it was under his direction that those experiments with the electric light in forcing the growth of various crops which had such wonderful results were carried out. It is amazing that with such astonishing results as were then obtained and chronicled, no one has followed up the results on a larger scale. Of course, they were only experiments, but they were experiments of the most promising character.

The model (fig. 162, p. 477) showing a florist of the olden time was photographed by Mr. John Gregory, who tells us:—

"The model is said by the grandmother of the owner to be over a hundred years old, and represents a well-known florist of the time. He is wearing trousers (they were introduced about the time the model was made). He had previously worn breeches. In the basket upon his knees are packets of seeds, viz., Kalmia, China Asters, Carnations, Convolvulus, bag of roots, &c., and in his hand is a packet of Sweet Peas. On the stand the plants are Carnation, Narcissus, Rose, Convolvulus, Pansy, Ranunculus, old English Tulip (striped), Dutch Tulip, double white, &c. The pots are made of baked clay, similar to those used at present. The flowers and leaves are made of linen, coloured. The model illustrates the florist of the days when they grew the plants and seeds, and sold them themselves in the market-place. The basket upon the ground contains Radishes, Turnips, Lettuce, Carrots (with wireworm marks), Marrow, Cucumber, and others. The baskets are of wicker-work, the water pot of tin."

The Supplementary Illustration, representing a new species of Lycoris, is dealt with in a separate paragraph (see p. 469).

A HISTORIC CATALPA.

Probably not one in fifty of the folk from the United States who visit London every year, and go on their way rejoicing in the thought that they have done the Metropolis thoroughly, sees a relic that to Americans ought to be one of the most interesting here—an old Catalpa tree that Sir Walter Raleigh brought from Virginia, and that Sir Francis Bacon planted in Gray's Inn Gardens.

That American travellers miss the historic tree is no reflection on their sightseeing industry. Even Baedeker seems to have overlooked it, and probably few people in London, outside the officials of Gray's Inn, know its history. That history is unusually interesting, however. When Sir Walter Raleigh brought the tree to England his idea was to have his good friend and patron, Queen Elizabeth, plant it in Gray's Inn Gardens then a favourite strolling place with the fashionable folk. It was fully understood that the Queen would do so, but just before the time came Her Majesty was taken ill, and she deputed Bacon—who, according to Mr. Gallup's cypher, was Elizabeth's son—to take her place.

Gray's Inn, for centuries devoted to law and lawyers, got its name from having belonged to the Lords Gray as far back as the 1300's. It first got to be a law school in 1371. Here Queen Elizabeth came often, and here Shakespeare's "Comedy of Errors" was first given in 1594, and doubtless seen by Bacon, who began to study law at Gray's Inn in 1576. Other famous figures of the old Gray's Inn were Thomas Cromwell and Lord Burleigh.

The gardens where once the gallants and grand dames of the town used to foregather and where Raleigh's tree was planted, still remain, almost as they were, but now there is a high fence around them, the public is not admitted, and the jaded folk who pass through shabby Gray's Inn Road look longingly in at the grass and the old trees.

Oldest of all these is the veteran Catalpa that

came from "Virginy." In fact, it is so old now that it has rotted a good deal, and has to be kept in place by means of braces. The consequential rooks, which live in the gardens, esteem the tree greatly as a perching place. In fact, they have made it such a permanent headquarters, that a barrel filled with drinking water for them has been set just beside the Catalpa. This barrel stands just on the spot where Sir Francis Bacon had a bench placed for his own enjoyment. The seat remained there for years after the philosopher's death, until the night when it disappeared, and thereafter could never be traced. Perhaps the ghost of Shakespeare stole it. *Providence Journal.*

HOME CORRESPONDENCE.

DENDROMETER.—A mistake was made and was corrected by me. Mr. Richardson now writes: "If 'D.' means that Mr. Duncombe was the inventor of the dendrometer *per se*, he is in error." Why? Because, he says, dendrometers are old, though the name is "comparatively recent." To prove their antiquity he tells us that one was figured "about a hundred years ago." But my inventor, Mr. Duncombe, who was described as "the inventor of the dendrometer," lived more than a hundred years ago; so we need more facts. *D.*

THE HORTICULTURAL HALL.—I confess I do not quite see the point of Mr. Cannell's argument at p. 423; nor do I note any analogy between the Regent's Park of years ago and the Horticultural Hall of the Royal Horticultural Society. No one who remembers the palmy days of the "Botanic," and the great throngs of the *élite* of London, would attempt to deny this portion of Mr. Cannell's note; but when Mr. Cannell appeals for the "grassy slopes and steps, with winding gravel-walks like a real garden," for the annual Temple Show, one cannot quite understand his meaning, or what connection there is with the construction of a new home for the Royal Horticultural Society. Surely, if the Council of the latter desired a little boasting all to themselves, could it not speak in glowing terms of the "*élite* of London" who now flock in their thousands to the great Temple Show, although the Temple Gardens cannot be called ornate in any great degree? Certainly, with such an arrangement as Mr. Cannell desires, the exhibits, and the large specimen plants in particular, could be arranged in a more pleasing fashion than is the case at present. The weak point of it all is, that these terraced steps and slopes would have to be arranged on one plan, as though all classes of exhibits were of similar size. At any rate, these things have certainly little to do with the success of any society; and in the instance before us they would fail to attract as of yore, if indeed these were the attractions. Apart from this, one is surprised to find so far-seeing a man as is Mr. Cannell comparing the Royal Horticultural Society with any other society in the land. The thing is absurd, for the Royal Horticultural Society is absolutely and entirely unique. Many exhibitions of a high class character are held in the provinces, and are successful, both financially and as exhibitions. In not a few instances, however, these provincial exhibitions form the one event of the year, and this being the case, it is not remarkable that provincial shows are generally a success. But what of the Royal Horticultural? Surely none better than Mr. Cannell knows that its interest in horticulture is as permanent as it is profuse and uniformly continued throughout the year. By holding the fortnightly meetings, the entire season of flowers, fruits, and vegetables is embraced. What a golden opportunity for the commercial horticulturist to expose his productions to an ever increasing number of visitors! If so much is done at the Drill Hall now, while the space is largely taken up by the several committees, how much more may be expected in the larger area of the new Hall! The need of a sufficiently large Hall is very great, as no one will deny, and Mr. James Wood rightly says that it is a matter of "national importance." Let us hope that horticulturists and patrons of the gentle art will think so too and unite, and supply the necessary funds for carrying out the scheme put forward by the Council. *E. H. Jenkins, Hampton Hill.*

BOUVARDIA KING OF SCARLETS.—With reference to the above named variety, which received an Award of Merit at the Drill Hall on the 9th inst., it may not be known generally that the raiser is a very worthy man, whose name will be familiar to growers of Chrysanthemums in this country, viz., Mr. G. H. Kerslake of Sydney, N.S.W. *C. B., Altrincham.*

SUBSTITUTES FOR HOPS.—Mr. John R. Jackson alludes, in the *Gardeners' Chronicle*, p. 433, to the possibility of using Jateorhiza Calumba (Calumba root) as a substitute for Hops in such a year as the present, when the Hop harvest is deficient. It may be doubted if brewers would receive the idea favourably. It is said, indeed, that the Calumba root yields a bitter and tonic substance; but if used in any quantity, will the effects of it be healthful? Calumba belongs to the Menispermaceæ, in which are included many poisonous plants, and it is akin to the genus Cocculus, of ill-repute, as including C. indicus. Some ten years ago, several persons, among them M. Charles Baltet of Troyes, conceived the idea of using Ptelea trifoliata as a substitute for Hops, as it is an innocuous plant, and experiments in breweries in the Departments of Aube and of Marne gave very good results. Ptelea was not adopted, because the brewers feared a charge of adulteration if they used a substitute for Hops. In France, as in England, we have advocates for "pure beer," and if the public knew that any substance had replaced the Hops, they would call the product "sophisticated." If Hops should again fail, larger use might be made of surplus crops gathered in more abundant harvests and preserved by cold storage. This is already done by certain brewers, and the plan has proved very successful. *G. T. Grignan, Paris.*

FIG. 162.—MODEL OF AN OLD-TIME FLORIST AND HIS SPECIALTIES. (SEE P. 476.)

NOMENCLATURE OF CACTI.—Allow me to add a few words to the article on Cacti in the *Gardeners' Chronicle* for December 13 (p. 430), signed "A. Worsley, Isleworth." I cannot agree with suggestions made in that article respecting a revision of the nomenclature of Cacti. It is certain that there were many errors in the former systems of nomenclature, and I cannot say that in the modern system, as now almost universally adopted, there are no mistakes; still, it is greatly better than that formerly used. The writer of the article "Cacti" makes an unlucky selection when instancing seedlings of Phyllocactus in proof of what he asserts. In fact, if Mr. Worsley had sown seeds of a true, pure Phyllocactus, he would not have obtained seedlings with from three to six edges, but veritable Phyllocactus seedlings with flat stems; and I can offer him some seed, that he may prove this for himself. The many-edged seedlings obtained came from seed of a Phyllocactus that had been crossed with Cereus speciosus or some other Cereus. Such seed as these I can also provide, that the writer may sow them side by side with the others, and observe the differences between them. *Fr. De Laet, Contich.*

ROMNEYA COULTERI.—This fine herbaceous perennial cannot be depended upon to survive a hard winter in Cheshire without some protection, though in sheltered situations facing south I have seen it do well for several years out-of-doors. Two large, shapely plants, three or four years old, and covered with flowers and buds, were very ornamental under a south wall at Aldersey Hall, 8 miles south of Chester, last August. Another good specimen I saw last year in the Vale of Clwyd, near Denbigh, in an open border, without the protection of a wall. Here, 12 miles south of Chester, I grow Romneya for the most part in halved paraffin-tubs, which are moved into the shelter of a frame in winter. The flowering this year has been very good, and lasted from the end of July into October, when frost spoilt it, with many buds ready to expand. But the best plant I have is one which was left in a pot two years ago in an unheated frame, and having grown through the bottom of the pot, spread into the soil below and threw up a forest of suckers, many of which have branched and flowered. They are now allowed the monopoly of the frame, but I have tried, hitherto without success, to make any of these suckers root when detached. I have sometimes found ripe seed in my garden, which has come up when sown; but the young plants are difficult to rear, a large proportion dying when transplanted. By a nursery catalogue lately received from the Southern California Acclimatising Association, Santa Barbara, I find that the Californian name of the Romneya Coulteri is the Matilija Poppy. Such is the appreciation in which it is held in its native country as a garden ornament, that 2 dolls. (about 8s.) are asked for a good plant. From a note in the catalogue it seems that it is as difficult to establish in cultivation there as it is in England. *C. Wolley Dod, Edge Hall, Malpas.*

HARDY FLOWERS ON CHRISTMAS-DAY are not very plentiful, and the weather does not usually lend much encouragement to the few there are. But if rain, wind, and frost chance to keep away, a little beauty will put in an appearance somewhere about that time. Its name is Crocus Cartwrightianus albus. Cartwrightianus is given in *Index Kewensis* as a synonym for sativus. After C. speciosus, I think it the most beautiful of all the Croci. The petals are of the purest white, and contrast most effectively with the yellow stamens and scarlet pistil. I daresay Messrs. Barr still offer it. I got my original bulb from them many years ago, and it has greatly multiplied. *A. K. Bulley.*

ENGLISHMEN FOR CANADA.—Some weeks ago you published a letter of mine, in which attention was called to the way aliens were rushing in to settle up the great west of Canada—the finest Wheat-belt in the Empire. My suggestion was that Englishmen should go out in large parties to take advantage of the Canadian Government's offer of 160 acres of this fine Wheat-land as a free homestead to each man over eighteen years of age. Hundreds of letters have been sent by those wishing to go, asking me to organise a large national movement for next March. This is now being done, and already a large party is forming from all over the kingdom for March, 1903, to be followed by a supplemental one in 1904. Those who contemplate going to Canada can obtain all particulars of the movement by sending a stamped addressed envelope to my private address, Alexandra Park Road, Wood Green, N. At the same time, it should be distinctly understood that I am not an emigration agent, and that I receive no remuneration whatever from anyone in this matter, neither am I in a position to render financial assistance to those who might like to go but cannot find the funds. Every man must pay his own way, and should be possessed of about £100 upward, though others who have much less may go upon homesteads and work them by co-operating with two or three others. The Canadian Government has been approached to set aside a large area for the exclusive settlement of this party, and the selection is now being completed with very satisfactory results. It will be somewhat larger than the county of Middlesex, and is situated in the now famous Saskatchewan Valley. We have also the assurance that a railway will be laid through the settlement in 1903, to be completed to Edmonton by 1904. Those who cannot go before 1904 will probably be allowed to pay their Government registration fee of £2 here, so that a homestead of 160 acres may be held for them in this same district. I am told that the prospects of the whole Saskatchewan Valley are so good, that by 1904 or 1905, with the present rate of settlement, the free grant lands will have been largely appropriated. The Americans have already taken up a large amount; now let us put in a good solid party of Englishmen, and take the rest before it is all alienated. *Rev. George E. Lloyd, Special Deputation Secretary, Colonial and Continental Church Society.*

THE DRAINAGE-WATER FROM A VINE BORDER.—While applying water to a Vine-border one day towards the end of last September, I noticed the drainage-water was highly coloured yellow; and as the water I was using was clear soft water, direct from the pump, it occurred to my mind there might be a quantity of valuable matter being washed out of the soil. I therefore collected sufficient to make a thorough examination of it. I had previously made two analyses of the soil, at an interval of twelve months, to determine the amount of available potash, phosphates, lime, and the total nitrogen. From the first analysis I obtained the following figures:—Potash, 0·309 per cent.; phosphoric acid, 0·155 per cent.; lime, 0·970 per cent.; nitrogen, 0·275 per cent. The second:—Potash, 0·044 per cent.; phosphoric acid, 0·119 per cent.; lime, 0·910 per cent.; nitrogen, 0·221 per cent. These figures show a great reduction in all four ingredients, especially the potash, in the twelve months. The deficit of phosphoric acid in the second analysis can be accounted for by its being rendered less soluble through coming into contact with the iron, alumina, and lime in the soil, and forming insoluble compounds; but I could not account for the loss of available potash in the time. The only way to find out with any degree of certainty what had become of the potash, was to have determined the total amount each time the available amount was fixed; but my time would not allow for that. When I saw the highly coloured liquid escaping from the drainage, I thought I might be well repaid to make an examination of the fluid. After removing all suspended matter, I found the fluid to be perfectly neutral as regards any acid or alkaline reaction. The specific gravity was considerably higher than that of water, which indicated a fair amount of solid matter in solution. After making the preliminary examination to find what substances were in solution, I determined the amount of each. I was certainly very much surprised to find so much dissolved matter. Instead of stating the results here centesimally, I thought it would be more intelligible to all readers to use the English weight and measure.

Total solids, 207 89 grains per gall.—nearly ½ oz.

Soda	(Na_2O)	10 14	grains per gal.
Magnesia	(MgO)	23·06	,, ,, ,,
Potash	(K_2O)	8·41	,, ,, ,,
Lime	(CaO)	27·18	,, ,, ,,
Chlorine	(Cl)	3·43	,, ,, ,,
Anhydrous sulphuric acid	(SO_3)	63 91	,, ,, ,,
,, nitric acid ...	(N_2O_5)	33·01	,, ,, ,,
Organic matter		38 55	,, ,, ,,
Trace of ammonia			
No trace of phosphates			
		207 71	,, ,, ,,

A glance at the above figures shows what a large quantity of valuable ingredients are washed out of the soil when water is applied in excess, and where the borders are shallow and require water more or less every week during the summer, a considerable quantity must be removed from the soil. The borders I have made here are shallow and well drained, the water getting away freely. I did not hesitate to give water in abundance, little thinking so much valuable matter was being carried away. The solid substances in solution in the drainage-water are much more valuable than the same weight of solid matter in the various forms of manures applied to the surface, because the soil organisms have been at work converting the simple substances into much more complicated ones, and preparing them for the use of the plant. We see this by the quantity of organic matter in the above analysis, which is undoubtedly in the form of organic acids, because there is not sufficient of the three mineral acids to combine with the whole of the bases. The border is a new one, only made three years ago; undoubtedly this accounts for the high percentage of solids in the liquid. The phosphate was added in the form of basic slag, and the potash as sulphate of potash and that in the wood-ashes. The young Vines made poor headway the first two years, but they are now doing well, growing very strongly. I made another border two years ago, and instead of adding anything in the way of bones or other manures, I added quantities of burnt earth, wood-ashes, and some horse-droppings, "fresh;" and the young Vines planted in this compost grew very vigorously from the first, and have outdone those planted in the other border by far. The available potash, phosphoric acid, lime, and total nitrogen in the two borders are:—

	Potash	Phos. acid.	Lime (total).	Nitrogen	
1st Border	0 309%	0·155%	0·970%	0·275%	with slag and potash manures.
2nd ,,	0 168%	0·065%	0·168%	0 419%	with droppings and wood-ashes.

The figures to the second border show abundance of material ready available to the plants, and the Vines growing in the compost prove it. These ingredients were extracted from the soil by Dr. Dyer's method for the estimation of available plant foods, a 1 per cent. solution of citric acid, and not by strong mineral acids. *W. H. Dobson, Stapleton Park, Yorks.*

COFFEE PLANTING IN BRITISH CENTRAL AFRICA.—"The history of Coffee in Nyasaland, dates back only to the year 1878, when three small Coffee plants from the Edinburgh Botanical Gardens, were taken out by Mr. Duncan, then gardener to the Church of Scotland Mission, at Blantyre, and planted in the mission garden there. This was done at the energetic representations of Mr. John Buchanan. In the year 1880, the sole survivor of the three plants brought out by Mr. Duncan, bore a crop of about one thousand beans. From the distribution of the seed three years later, may be dated the beginning of Coffee planting on an extensive scale; but in 1881, the first serious attempt to put Coffee on the home market, and to gauge its value as a commercial product in competition with other Coffees, was made by the late Mr. John Buchanan, of the firm of Buchanan Brothers, whose name is so honourably connected not only with the commercial, but the political development of the Shire Highlands. A sample of the first crop was sent home for valuation, and was quoted in the London market at 85*s.* per cwt. Messrs. Buchanan Brothers in 1889, opened up large plantations at Zonba, Michiru, and elsewhere, while the African Lakes Company's Coffee plantations at Mandala continued to do well. Mr. Brown, of Ceylon experience, settled in the Nilanje district, which had been strongly represented by the late Rev. Robert Cleland, as exceptionally well suited for Coffee, and Mr. Duncan, having now left the mission, opened up a plantation near Blantyre. From this point, so rapid has been the progress made, that the late Mr. John Buchanan wrote in the *Central African Planter* for October, 1895, that no fewer than one hundred plantations has been opened up under the respective interests in the country, and that these plantations represented an area of 6,000 acres under cultivation. The local revenue rose from nothing to £20,000 per annum in five years. The services of Mr Buchanan were recognised by the Government and he received a C.M.G. in 1890. Much to the regret of every one, he died on his way home for a holiday on March 9, 1896." The above lines are taken from an article written by Mr. H. D. Herd, published November 2, 1896, in *Chambers's Journal*, part 154, p. 646. *Robt. Craig, 29, Caroline Place, Bayswater, London, W.*

"INDEX KEWENSIS."—The Rev. C. Wolley Dod (whose note on the publication of the Supplement to the *Index Kewensis* appears on p. 464 of the last issue of the *Gardeners' Chronicle*) may be interested to learn that the manuscript of the Supplement was offered to the Delegates of the Clarendon Press, Oxford, in order that it might be issued in the same form as the main work, but the then secretary to the Delegates Mr. Lyttleton Gell, would not entertain the idea of the slightest return being made to the authors, not even the repayment of their costs out of pocket. Much against our will, therefore, the printing and publication had to be effected in Brussels. *B. Daydon Jackson.*

THE POTATO.

M. E. Bréal contributes to a recent number of the *Annales Agronomiques* an interesting paper on the Potato, in which he deals with the plant in its wild, and in its cultivated state; then with the details of its germination and development, and lastly with recent experiments with the tuber. We abridge the following details from M. Bréal's paper.

"M. Ernest Rose mentions, in his interesting *Histoire de la Pomme de Terre*, that the well known travellers Humboldt and Bonpland found the plant wild in great abundance at an altitude of 10,700 feet in the Cordilleras, the tubers being used by the natives as food. At this elevation it freezes every night for the greater part of the year, and by day the sun is scorching, and the air very dry. To preserve the tubers, the natives spread them on a layer of straw, water them towards sunset, and leave them to be frozen at night. This is repeated on three or four evenings; the tubers thus become a doughy mass which the men pound under their feet, and then leave to dry in the sun. In other regions, the pulp of the bruised Potatos, before being dried, is subjected to a long washing in running water. Experience has shown that by thus washing the pulp of frozen Potatos, the narcotic, bitter-tasting alkaloid called solanin is removed. This element

is found in all Solanaceous plants." This is a poisonous 'glucose,' existing principally in the cells that contain green matter, made by the action of sunlight.

Further on in his paper, M. Bréal speaks of the experiments made lately by M. Noël Bernard, and reported on in these columns, as to the causes favouring the formation of tubers.

The summary of M. Bréal's remarks is as follows: "The tuber of the Potato is an enlargment of an underground stem in which the reserve materials of the plant are stored. It contains 16 per cent. of starch, and only 4 of nitrogen—ten times less than the seed of such vegetables as Beans, Peas, and Lentils.

"The tuber is protected from drying up by a corky rind, and retains until the spring about the same amount (80 per cent.) of water that it contained when harvested. In winter, life is latent. In the process of respiration, it gives off water, carbonic acid, and ammonia. Subjected to the influence of chloroform vapour, it ceases to exhale carbonic acid, and if the action of the chloroform is prolonged, the tuber dies, exuding a nitrogenous liquid.

"Plunged into carbonic acid, it is suffocated, and solanin can be observed exuding from the tissues. Cold lessens the respiration of the tuber, and occasions an accumulation of 'reducing sugar' in the tissues. Frost, followed by thaw, causes the exudation of a liquid acid containing solanin in solution.

"In the tissues of the tuber the presence of nitrates and of ammonia salts can be traced. The nitric acid disappears on piercing the parenchyma with a pointed tube charged with a solution of an ammonia salt. The organic nitrogen of the Potato is partly contained in a form insoluble in water, the remaining portion is soluble, and principally consists of albumen that coagulates in water at 70° C. In the liquid, after the separation of the albumen, solanin is found.

"In spring, Potatos sprout spontaneously, but to induce the formation of roots at the base an application of water is necessary. During this process of sprouting, the large grains of starch in the tuber become corroded, and smaller ones appear in the buds or shoots. The green matter in these shoots plunged into water containing starch in solution causes the starch to disappear in a few moments. The roots of the shoots absorb the ammonia nitrates and humic acid within their reach, and the plant becomes richer in nitrogen.

"All the organs of the plant, when rooted in the earth, contain nitrogenous matter; one tuber, formed on a stolon, was an exception to this. It is possible to induce buds to sprout when separated from the parent tuber, if their roots are plunged into a solution of mineral salts and humate of potash; or even in good soil watered with saline solutions, the proportion of organic nitrogen in the dry matter of their organs being doubled in a few weeks.

"Roots living in water do not absorb ammonia when they have nitric acid at their disposal; they take up ammonia when no nitrates are at their disposal.

"After the development of the aërial parts, tubers form on the underground stems of the plant. M. Noël Bernard, as we have already said, attributes the formation of tubers on the stolons to the presence of a fungus (Fusarium) developed on the roots of the plant, and in the corky skin of the tuber. The fungus cultivated in the laboratory has been placed in contact with the young growing shoots of the Potato, with the result that a larger number of tubers has been produced than on other shoots or eyes not so infected; and thus it is suggested that in future, dung infected with the Fusarium should be used as a manure for Potatos."

Here is work for our experimental stations—to verify these observations, and endeavour to prove or to refute their practical value. Chiswick would be in some respects an ideal spot for carrying out such investigations, but we fear the realisation of the idea is not very probable under present conditions.

Sometimes the plant bears well-developed foliage, rich in nitrogenous matter, but forms no tubers below-ground. Sometimes, again, tubers are formed above-ground, in the axils of the leaves.

Shoots grown in the soil, when separated from the parent plant, prove vigorous accumulators of organic nitrogen; after six months of growth, they contain 460 times more nitrogen than when planted. The crop so much commented on, raised by Aimé Girard, of 40,000 kilos. of Richter's Imperator per hectare (about 4 tons to every 2½ acres), drew from the soil but 120 kilos. (2¼ cwt.) of nitrogen; but the stems, leaves, and roots, during the whole progress of growth, had certainly accumulated in their tissue a much larger proportion of this constituent.

MARKET NOTES.

BANANAS.

The trade is all in favour of the buyer, and except in the case of first-class produce, for high coloured fruit from the Canaries, the cheaper trade and the costermonger have it in their own hands. When fairly sound fruits are being retailed at two a penny, it gives us the true market value. The cause of this unexpected drop in prices is caused by the last shipload of Canary Island Bananas having arrived in a ripe condition; and the previous shipment about ripe, and of a khaki colour. The trade will not buy, thus the fruit is being offered at about half the original cost; the better samples, except as regards colour, are selling for 4s. per bunch. *S. C.*

AMENDMENT OF THE PHARMACY ACT.

SALE OF POISONOUS COMPOUNDS.

It may interest many of your readers to know that it is in contemplation to effect a change in the law as to the sale of poisons, which, while safeguarding the public interest, will meet the convenience of large numbers of persons who make use of poisonous compounds for agricultural, horticultural, trade, and technical purposes.

Hitherto the law, although it has not always been strictly observed, has required that such compounds should be sold only by properly qualified chemists; but it would be manifestly more convenient that articles such as sheep dips, insecticides, disinfectants, and articles used for photographic purposes, should be readily obtainable from agricultural agents, nurserymen, seedsmen, ironmongers, and oil and colourmen, as well as chemists, the former having more practical knowledge of the uses for which these articles are required. It is understood that the Departmental Committee on Poisons will report to the Privy Council and to Parliament in favour of an alteration in the law, and that the Government will shortly bring in a Bill amending the Pharmacy Act on the lines suggested by the Poisons Committee, providing for the sale by licensed persons, in properly labelled and sealed bottles or packages, of articles already described, as supplied by manufacturers or by wholesale dealers.

The pharmacists are certain to endeavour to retain their present privilege; it is for the traders who favour a change in the law to take care that the proposed alteration is made thoroughly effective in their own interests.

The time is now ripe, therefore, for concerted action to be taken by the traders affected; and we, on behalf of the Traders in Poisonous Compounds, &c., Protection Society, shall be greatly obliged if they will at once communicate with us, so that arrangements may be made for deputations to wait upon the Members of Parliament for all constituencies claiming their support of the Bill. *Thos. G. Dobbs, Secretary, 24, Sansome Street, Worcester; G. H. Richards, Treasurer, 234, Borough High Street, London, S.E.*

SOCIETIES.

PUTNEY AND WANDSWORTH CHRYSANTHENUM.

December 18.—A very successful meeting took place on the above date, when the annual dinner was held at Wandsworth. Nearly seventy members and visitors assembled, and the enthusiasm was particularly great. Mr. J. McKerchar, who presided, made some capital speeches, and pleased everyone present. Among other visitors were Messrs. Glendinning, Dawkins, Tiver, Weeks, Honess, Want, Russel, Pearson, &c. The toasts included that of the Society, the Chairman of Committee (Mr. Mahood), Officers of the Society (with specially cordial references to the value of Mr. McLeod's services), Donors of Special Prizes, Exhibitors, &c. The names of Messrs. Bartley, Bradford, French, and Dark were coupled with these toasts. The entertainment was capital, and songs were given by the Messrs. Berry (sons of Mr. Berry, a well-known gardener at Roehampton), Weeks, Grant, Want, &c.

This Society, after an existence of more than a quarter of a century, is more vigorous than ever; its membership increases, and its financial balance is better. The acting secretary is Mr. Reynolds; and the next show will be held at Putney in November, 1903.

A NEW APPLICATION FOR RAMIE FIBRE.

It has been the fate of Ramie or China grass-fibre to have alternately long periods of a smouldering existence and then to burst into a flame of popularity. This has been going on for the last hundred years, and notwithstanding that, there can be no doubt as to the value of the fibre, and to its adaptability to a great variety of uses, Ramie cannot yet be included amongst commercial fibres. Quite recently notices have appeared in the *Lancet* and other publications on the application of the fibre for the manufacture of underclothing, a factory having been set up at Carlskrona, in Sweden, for this special purpose. Ramie underclothing is said to be superior to wool, cotton, linen, or silk; further, that it is more durable, is unalterable in its texture, does not shrink, and its properties are unchanged in spite of wear and washing. The fabrics which we have seen are certainly well made, one pattern in particular being so open and withal strong that though the thread itself is not elastic, the mesh-like structure makes the material quite elastic—a property that is said to be retained permanently. In consequence of these characters many advantages over other materials are claimed for it, namely, that it does not hinder perspiration but facilitates it, and secures complete ventilation, receiving warmth from, and returning it to the skin; further, that it is cooling during oppressive heat, and warming in cold weather; and above all, that it "prevents the germination of diseases of the skin, rheumatism, &c." Though the manufacturers are introducing it exclusively for underclothing and hosiery, some of the patterns would seem to have recommendations for ladies' blouses or summer dresses, the pattern being of an open or network character, would look well over a dress of a bright colour. With the view of furthering the use of Ramie, we may perhaps say that the English agents for these materials are Messrs. Hall, Nilsen & Co., 47, Mosley Street, Manchester. *John R. Jackson, Clarence Cort, Lympstone, Devon.*

Answers to Correspondents

*** EDITOR AND PUBLISHER.—Our correspondents would obviate delay in obtaining answers to their communications, and save us much time and trouble, if they would kindly observe the notice printed weekly to the effect that all communications relating to financial matters and to advertisements should be addressed to the PUBLISHER; and that all communications intended for publication, or referring to the literary department, and all plants to be named, should be directed to the EDITOR. The two departments, publishing and editorial, are quite distinct, and much unnecessary delay and confusion arise when letters are misdirected.

AËRIAL ROOTS ON THE GRAPE-VINE: *N. Marshall.* A want of balance between the amount of moisture in the air of the vinery and the ventilation applied. We are not aware that these roots do any harm.

APPLE BRANCHES SWOLLEN: *S. P. E.* We see no trace of insect or fungus, but the swellings are like those caused by the American blight insect.

BOOKS: *A. Reiser.* There is no work of the kind named that we know of; market methods are identical with those pursued in private gardens, excepting, perhaps, that being less thorough in certain particulars they are less costly. *Vines and Vine Culture*, by A. F. Barron, published by the *Journal of Horticulture*, 12, Mitre Court Chambers, Fleet Street.—*M. Geo. Bigot. Handy Book of Fruit Culture under Glass*, by David Thomson. Published by W. Blackwood & Sons, Edinburgh and London. Smaller manuals on the subjects mentioned in your note are sold separately by Mr. Upcott Gill, *Bazaar* Office, 170, Strand, W.C., at 6*d.* and 1*s.* each.—*M. G. B.* Fawkes on *Glass-house Construction.*—*W. J. L. Les Drogues Simples.* The London booksellers who would supply the book are Williams & Norgate, of Henrietta Street, Covent Garden, London, W.C.

BORDEAUX MIXTURE FOR SPRAYING TOMATO AND OTHER PLANTS: *Northern Scott.* The formula for making this fungicide was last published in our issue for October 4 of the present year. We have not space to repeat it. An effective fungicide for use when only a few plants have to be dressed consists of liver-of-sulphur, ½ oz., water 1 gallon—neither should be applied whilst the flowers are setting.

CELERY: *T. G.* The 15th of March is too early for sowing seed for the production of blanched Celery at Christmas in your part of the country. The plants should not have been kept to so late a date; there should have been an April sowing as well. Evidently the stick sent began to push up the flower-shaft early in October, and had in consequence become hard and stringy, and fit only for flavouring purposes. It is gnawed all over by slugs, and is not nice to look at. You should afford frequent dustings of fresh soot and quicklime to all your Celery, in order to keep these marauders away during the autumn and winter, applying the dressing at each earthing-up.

COWSHED DRAINAGE: *H. J.* It would certainly do the Roses much good if the soil is poor, or it has not been recently manured. If the manure is much diluted with water it would be safe to use it as drawn from the tank, twice or thrice during the winter and spring months. Or if you have an orchard, or shrubs growing on poor soil, an application or two would be of benefit.

CURRANT-BUD MITES: *S. P. E.* The buds excite suspicion, but on a casual inspection, which is all we could do at the present time, we found no mites. Send further specimens, please.

ETHER FORCING: *Chemist.* The pamphlet may be had from the Librairie Horticole, Rue de Grenelle, 84 bis, Paris, by post; or you can order it from Williams & Norgate, Henrietta Street, Covent Garden, London. We do not know the cost, probably only a franc or two.

LILY OF THE VALLEY: *Lilian.* An English market bunch contains twelve spikes. Bunches of bloom imported from France vary in size greatly.

NAMES OF FRUITS, ETC.: *We are desirous to oblige our correspondents as far as we can, but the task is becoming too great, too costly, and too time-consuming for us to continue it without restrictions. Correspondents should observe the rule that* **not more than six varieties** *be sent at any one time. The specimens must be good ones; if two of each variety are sent, identification will be easier. The fruits should be just approaching ripeness, and they should be properly numbered, and carefully packed. A leaf or shoot of each variety is helpful, and in the case of Plums, absolutely essential. In all cases it is necessary to know the district from which the fruits are sent. We do not undertake to send answers through the post, or to return fruits. Fruits and plants must not be sent in the same box. Delay in any case is unavoidable.*—*H. W.* 1, Delices d'Angers; 2, Glout Morceau; 3, Easter Beurré; 4, Olivier de Serres; 5, Passe Crassane; 6, Hacon's Incomparable.—*J. A. Smith.* Apple Kentish Fillbasket.—*J. Dickinson.* 1, Hollandbury; 2, Small's Admirable; 3, Pile's Russet; 4, King Pippin.—*Enquirer.* 1, Bismarck; 2, deformed, not recognised; 3, Sandringham; 4, not recognised; 5, Bellisime d'Hiver; 6, Augustus Pearmain.

FIG. 163.—YEW ATTACKED BY A FUNGUS, SPHÆRELLA TAXI.

NAMES OF PLANTS: *Correspondents not answered in this issue are requested to be so good as to consult the following number.*—*X.* Gordonia Lasianthus, the Loblolly Bay of the S. United States. The other plant is quite shrivelled. We guess it to be Erigeron mucronatus, but it is larger than we are accustomed to see it in this country.—*W. B.* 1, Sequoia sempervirens, Redwood; 2, Thuya orientalis; 3, T. gigantea (Lobbi of gardens); 4, 5, 6, all species of Pinus allied to excelsa and monticola, but without seeing the cones it would be hazardous to give names to small pieces.—*F. T. H.* 1, Physosiphon Loddigesii; 2, Pleurothallis rubens; 3, Restrepia trichoglossa; 4, Brassia maculata; 5, Cyperorchis elegans, commonly called Cymbidium elegans; 6, Odontoglossum constrictum.—*M. S.* The two large flowers are forms of Lycaste Skinneri; the dark flower, Cymbidium giganteum; the white flower, Cyperorchis Mastersii. It usually produces a raceme of flowers: syn. Cymbidium Mastersii; the small spotted flower, Odontoglossum ramosissimum. The flowers should be numbered and properly packed. These, knocked about in the box, were much damaged.—*J. H.* The smallest form of Maxillaria punctata.—*A. Y. L.* Odontoglossum gloriosum, a good form of it.—*R. T.* Cymbidium giganteum.—*J. W. Y.* All four are varieties of Cypripedium insigne, although they differ slightly in colour. Neither of them is distinct enough to be of any special value.—*A. R.* A variety of Hedera Helix. Most of the forms have the foliage turn coppery, or assume a dark tint in early winter.

NICHOLSON'S GARDENERS' DICTIONARY: *R. L.* The statement in the *Gardeners' Chronicle*, p. 468, was incorrect. There has been an issue of a supplement; but the reissue of the other volumes is a facsimile of the original.

SECTIONAL BOILER: *J. F. A.* We have forwarded your note to the writer of the note in the *Gardeners' Chronicle.*

SWEET POTATO (CONVOLVULUS BATATAS): *B. Green.* The plant is too tender for cultivation in the open air in this country, but it may be grown in a warm house or other structure. The method to pursue is to start some tubers in March in a mild hot-bed, and as soon as the shoots are strong enough, detach them and plant separately in small pots, and keep in the hot-bed for a few weeks, afterwards setting them in a less warm place. In May they may go into a frame, or warm greenhouse. There are numerous varieties.

VARIETIES OF GRAPES TO PLANT IN A VINERY ALONG WITH BLACK HAMBURGH, FOSTER'S SEEDLING, AND MADRESFIELD COURT: *N. M.* As affording variety, plant Duke of Buccleuch, Dr. Hogg, Ascot Frontignan, Muscat Champion, and Auvergne Frontignan.

WHITE FLINTS FROM A CHALK-PIT: *H. J.* You might hide them under a narrow border of Ivy, not necessarily consisting of the common species, or with Sedums, Periwinkle, Periploca græca, climbing Honeysuckle, or Saxifrages of the mossy type; or coat them with a thin slip of Portland cement.

YEW DISEASED: *S. P. E.* The leaves are affected with the fungus Sphærella Taxi (see fig. 163). You can do nothing but cut off the affected shoots as far as you can, and burn them.

COMMUNICATIONS RECEIVED.—Leonard Lille, Lyons—H. R. H.—F. de Sach—Scuola Superiore di Agricoltura, Portici—J. W. J.—Prof. Schumann, Berlin—W. T.—W. G. S.—Dr. Harshberger, Philadelphia—J. W.—M. Pardé—R. S. B., Sydney—Prof. Fisher—M. G., Santa Cruz—Dr. Debono Malta—C. W. D., Paris—C. T. D.—W. B.—F. F.—St. Bride's Press—M. A.—J. H. B.—M. Grabham—A. McK.—W. Pettit—S. C.—H. W. W.—J. O'B.—A. D.—W. R. F.—W. S.—C. P. C.—E. C.—J. S.—T. H. B.—E. B.—T. T.—J. J. W.—H. Perkins—C. P.—T. Lewis.—H. F. McMillan.

CATALOGUES RECEIVED.

SEEDS.

COOPER, TABER & Co., Ltd., 90 & 92, Southwark Street, London, S.E.—Wholesale.
W. CLIBRAN & SON, 10 & 12, Market Street, Manchester, and 295, High Street, Bangor.
TOOGOOD & SONS, Southampton.
DOBBIE & Co., Rothesay, N.B.

CARNATIONS.

H. & J. ELLIOTT, Courtbushes Nursery, Hurstpierpoint, Sussex.

FOREIGN.

FREDRICK ROEMER, Quedlinburg, Germany—Seeds.

Continued Increase in the Circulation of the "GARDENERS' CHRONICLE.

IMPORTANT TO ADVERTISERS. — *The Publisher has the satisfaction of announcing that the circulation of the "Gardeners' Chronicle" has, since the reduction in the price of the paper, more than*

TREBLED.

Advertisers are reminded that the "Chronicle" circulates among COUNTRY GENTLEMEN, AND ALL CLASSES OF GARDENERS AND GARDEN-LOVERS *at home, that it has a specially large* FOREIGN AND COLONIAL CIRCULATION, *and that it is preserved for reference in all the principal Libraries.*

(*For Markets and Weather, see p. viii.*)